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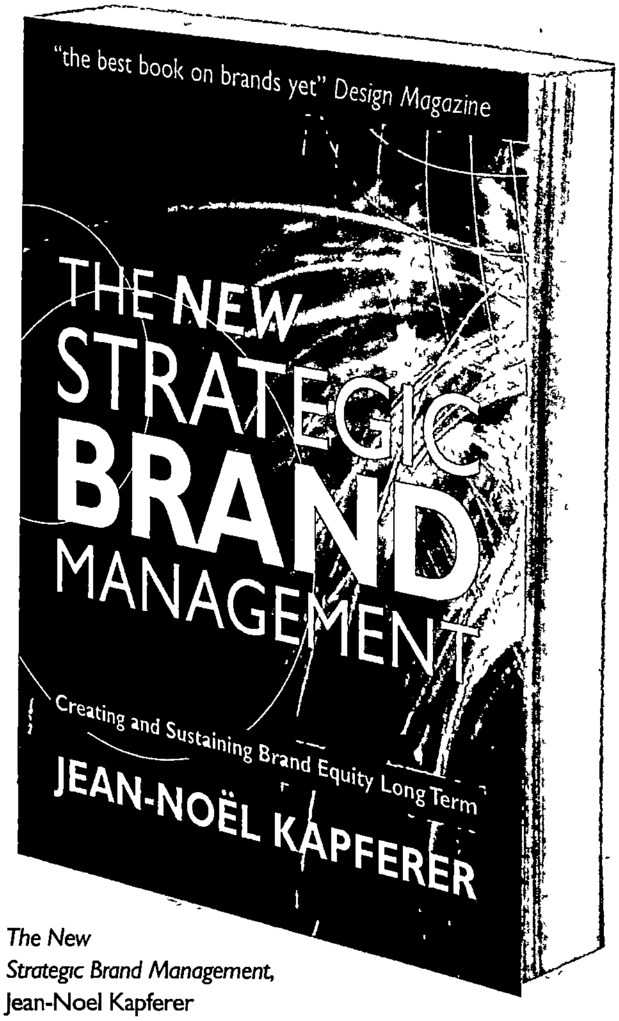
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Piyush Kumar

The Impact of Cobranding on Customer Evaluation of Brand Counterextensions

A brand that successfully extends from its parent category into a new extension category often faces a counterextension by a brand from the extension category back into its own parent category However, there is little guidance available on how brand extension strategies should be adjusted to mitigate the risk to the parent brand from counterextensions This research examines the differential impact of cobranded versus solo-branded extensions on customer evaluations of brand counterextensions It demonstrates that customers evaluate a counterextension less favorably if the preceding extension by the focal brand is cobranded than if it is solo branded The findings suggest that cobranding not only improves the attribute profile of a brand's own extension but also helps protect the brand against counterextensions

A widely adopted strategy for firms entering new product markets is to use brand extensions and to take advantage of an existing brand's equity in a new category (Aaker 1991, Park, Jaworski, and MacInnis 1986) A consequence of the popularity of this strategy is that brand extension activity between product categories is now increasingly bidirectional Often, a brand that successfully extends from its parent category into a new extension category faces a counterextension by a brand from the extension category back into its own parent category Such interactions between extensions and counterextensions are routinely observed across many categories, such as pitcher-based and faucet-mounted water filters (Brita versus PUR), domestic and international package delivery (FedEx versus DHL), cable service and Internet service (Cox Communication versus SBC Communications), and, more broadly, consumer electronics and computer hardware (Sony and Toshiba versus Dell and Gateway)

Although the brand management literature correctly cautions against indiscriminate use of extensions (Gibson 1990, Loken and Roedder-John 1993), there has been almost no research on whether a brand's extension strategy influences customer response toward counterextensions Thus, there is little guidance available on how extension strategies should be adjusted to mitigate the risk to the parent brand from counterextensions However, as brand extension activity across category boundaries continues to increase, the interplay between extensions and counterextensions is likely to emerge as a key brand management issue Therefore, marketers must begin to understand how to account for and manage the risk from counterextensions to ensure that the gains from the extension of their brand into a new product-market are not significantly offset by the losses suffered as a result of counterextensions that are launched into their product-market

In this article, I investigate whether cobranding an extension with a partner brand instead of launching it solo branded has an effect on customers' responses toward a counterextension My core thesis is that a successful solo-branded extension improves customer perception of the similarity and fit between the parent and extension categories and enhances customer evaluation of a counterextension However, a cobranded extension merely inherits select attributes from each partner brand and leaves the perceptions of similarity between a parent category and the extension category relatively unchanged Therefore, I predict that a counterextension is likely to be evaluated less favorably if the previous extension by the focal brand was cobranded with a partner brand than if it was solo branded

I address this issue with a series of five experimental studies that focus on the difference between the evaluation of a counterextension following cobranded versus solo-branded extensions I conclude the article with a discussion of the findings from these studies in terms of their theoretical and managerial implications, and I present an outline of a further research agenda in the area of brand counterextensions

Conceptual Background and Hypotheses

In this section, I begin by drawing on categorization theory (Rosch and Mervis 1975) to argue that a successful launch of a solo-branded extension improves customer perception of the similarity between the parent and extension product categories and thus enhances customer evaluation of a counterextension Then, I posit that cobranding the extension with an appropriate partner brand helps maintain the perceptual separation between the parent and extension categories and results in a lower customer evaluation of a counterextension Throughout the discussion, I refer to the

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focal brand that launches the first or initial brand extension as Brand A_1 and, when applicable, to its cobranding partner as Brand A_2 I refer to the brand that launches the counterextension as Brand B

The Impact of Brand Extensions on Customer Evaluation of Counterextensions

Customers tend to divide the products around them into categories and place products that are similar to one another into the same category and those that are dissimilar into different categories (Day, Shocker, and Srivastava 1979, Rosch 1978) Although category boundaries are often ill-defined, the perceived separation between a category and its neighboring category depends on whether its prototypes are unique or shared with the neighbor Categories that contain unique prototypes tend to be more distinctive than those that do not (Tversky 1977) Brands often serve as these prototypes and provide useful cues that help separate neighboring categories from one another Therefore, all else being equal, customers are likely to perceive a category as more differentiated if it contains unique brands than if it shares brands with other categories For example, the perceptual separation between the peanut butter and the jelly categories is likely to be greater if they both contain unique brands than if they share brands between them

A successful solo-branded extension by Brand A_1 into the category of Brand B reduces the number of unique or distinctive members of each category and increases the number of members that are common between them This change in the relative number of common versus unique members is likely to improve customer perception of the similarity and fit between the two categories (Aaker and Keller 1990, Dhar and Sherman 1996, Smith and Park 1992, Tversky 1977) In turn, a better fit facilitates the transfer of beliefs and affect that are associated with a brand in either category to its extension into the other (Cohen and Basu 1987, Meyers-Levy and Tybout 1989, Sujan 1985)[1] Therefore, a subsequent counterextension by Brand B into the category of Brand A_1 will be evaluated more favorably if Brand A_1 previously launched a successful solo-branded extension into the category of Brand B than if did not launch the extension (see Figure 1, Panels A and B) In other words, the increase in similarity between the categories of Brand A_1 and Brand B following a successful solo-branded extension by Brand A_1 is likely to improve customer evaluation of a counterextension by Brand B Formally, I hypothesize the following

> H_1 Customer evaluation of a counterextension by Brand B into the parent category of Brand A_1 is greater if Brand A_1 previously launched a successful solo-branded extension into the parent category of Brand B than if it did not launch the extension

Cobranding and Customer Evaluation of Counterextensions

A cobranded extension is one in which two brands are used jointly to present a product to the customer (Rao and Ruekert 1994) For example, Smucker's Dove ice-cream topping is a cobranded product launched jointly by Smucker's, a fruit preserves brand, and Dove, a chocolate brand, into a new product category Similarly, Oral-B Rembrandt whitening strips is a cobranded product launched by a toothbrush brand and a whitening toothpaste brand into a new category Previous research shows that cobranding is a useful extension strategy because it strengthens the attribute profile of the extension (Park, Jun, and Shocker 1996), helps the partner brands gain advertising synergies (Samu, Krishnan, and Smith 1999), and improves customer attitude toward the parent brands (Simonin and Ruth 2001)

More important, unlike a solo-branded extension, a cobranded extension is a composite brand concept that contains the characteristics of two underlying concepts (Cohen and Murphy 1984, Park, Jun, and Shocker 1996) Each of the two participating concepts is associated with a set of attributes that are combined according to a set of rules to form the composite concept (Eysenck and Keanne 1990, Hampton 1987) In other words, a cobranded extension does not involve the transfer of the entire brand concept from a parent category to an extension category (Park, Milberg, and Lawson 1991) Rather, it merely involves the transfer of a subset of attributes from each of the two parent brands, A_1 and A_2, and their recombination into a coherent composite concept that could become a member of the extension category to which Brand B belongs

The subset of attributes that each partner brand contributes is likely to be less unique to the parent brands, A_1 or A_2, than is the entire set of attributes that characterize each of them (Hampton 1997) For example, consider the case of a cobranded extension of a fruit preserves brand and a chocolate brand into the ice-cream toppings category One of the features that the former contributes to the cobranded extension is the packaging in a glass bottle, an attribute that, by itself, is less unique to the fruit preserves category than is the complete set of attributes that characterize the category Because Brand A_1 contributes only selective attributes to its cobranded extension with Brand A_2, the increase in overall similarity and fit between the parent category of Brand A_1 and the extension category is less than if the extension were solo branded by Brand A_1 A relatively smaller increase in similarity results in a lower evaluation of the counterextension by Brand B into the category of Brand A_1 than what it would have been if the extension by Brand A_1 was solo branded (see Figure 1, Panels B and C) Therefore, I hypothesize the following

> H_2 A counterextension by Brand B into the parent category of Brand A_1 is evaluated more favorably if the previous brand extension by Brand A_1 into the category of Brand B is solo branded than if it is cobranded with a partner brand, A_2, from a complementary category

Differential effect on header and modifying brands Although by definition a cobranded extension consists of two partner brands, A_1 and A_2, in general both brands do

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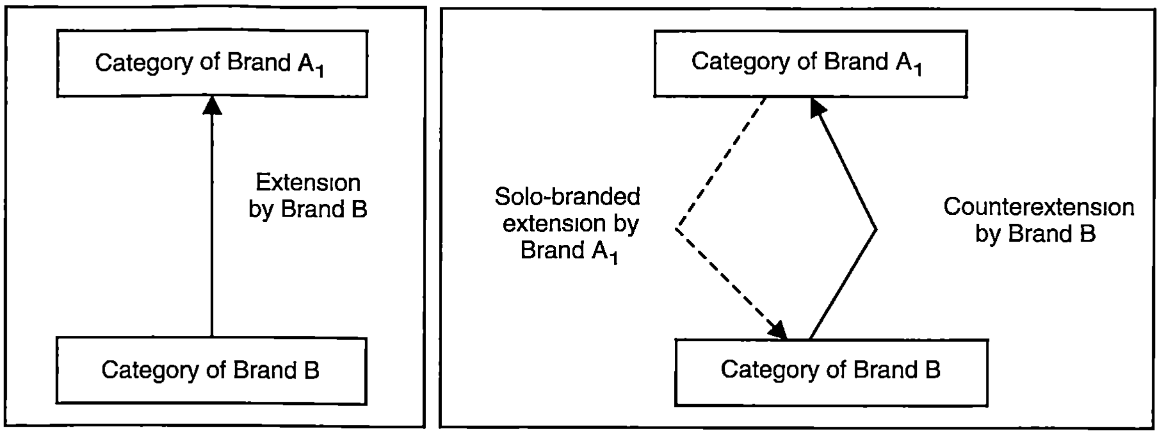
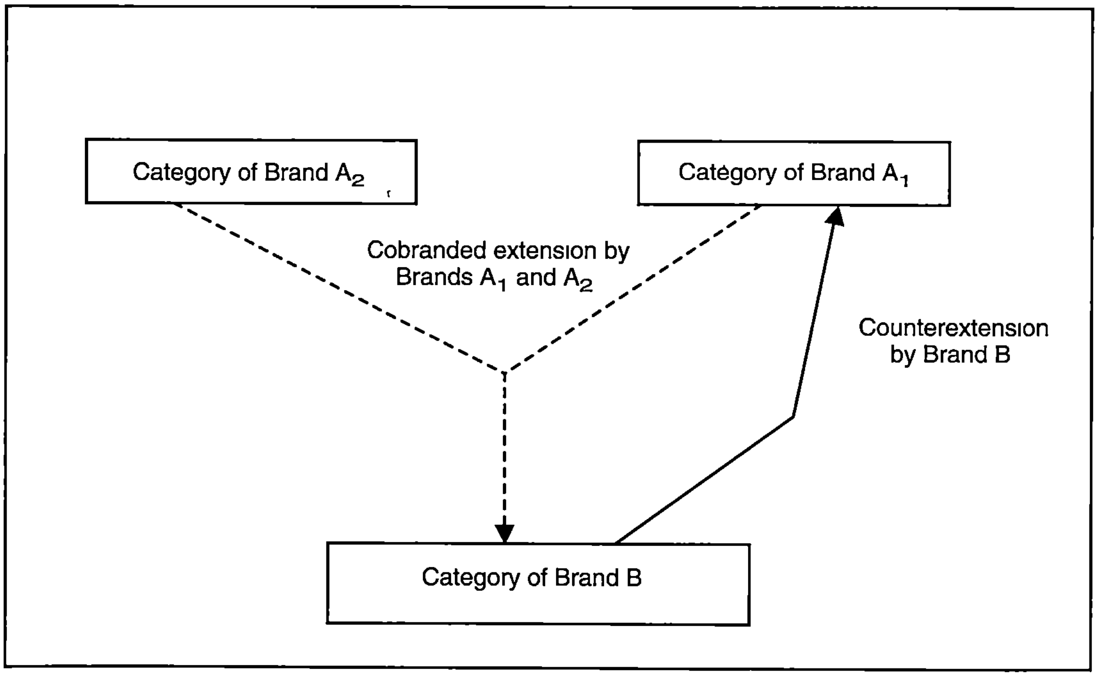
[1] However, the failure of an extension maintains the separation between the parent and extension categories Therefore, I expect that customer evaluation of a counterextension following a failed solo-branded extension is likely to be no different from what it would have been had the prior extension not been launched at all

FIGURE 1
Solo-Branded Versus Cobranded Extensions and Brand Counterextensions


A: Extension by Brand B (Control Condition)

B: Counterextension by Brand B Following a Solo-Branded Extension by Brand A_1


C: Counterextension by Brand B Following a Cobranded Extension by Brands A_1 and A_2

Category of Brand A_2
Category of Brand A_1
Cobranded extension by Brands A_1 and A_2
Counterextension by Brand B
Category of Brand B

not contribute equally to the cobranded concept Typically, one of the two brands serves as a dominant or header brand, and the other serves as a dominated or modifier brand (Murphy 1988) For example, in the case of Oral-B Rembrandt whitening strips, Oral-B serves as the header brand, and Rembrandt serves as the modifier brand Previous research shows that a composite concept tends to resemble one constituent concept more than the other, a phenomenon referred to as a "dominance effect" (Hampton 1988, Storms et al 1996) It tends to derive its features and attributes more from the dominant concept with which it is perceived to have a relatively greater overlap than from the dominated concept

Park, Jun, and Shocker (1996) interpret this finding within the context of brand alliances and suggest that a cobranded extension is likely to be more closely identified with and interpreted in terms of the properties of the header brand rather than those of the modifier brand The salience and the performance level of the attributes of the cobranded extension are therefore likely to be drawn more from the parent brand that serves as the header and less from the brand that serves as the modifier brand Therefore, following the successful launch of a cobranded extension, the perception of similarity between the extension category and the parent category of Brand A_1 is likely to be greater if A_1 serves as the header brand rather than as the modifier brand Overall, if both parent brands are reasonably strong and well liked, customer evaluation of a counterextension is likely to be superior if the parent brand is a header brand rather than a modifier brand in the previous cobranded extension [2] Formally, I hypothesize the following

H_3 A brand counterextension by Brand B into a parent category of Brand A_1 is evaluated more favorably if Brand A_1 serves as a header brand in the previously launched cobranded extension with Brand A_2 than if it serves as a modifying brand

Effect of positioning a cobranded extension A cobranded extension derives its attributes by selectively drawing on the attributes of the two partner brands It can be positioned through the use of a communication strategy that explicitly outlines the partner-specific contribution to its set of key attributes (hereinafter, an attribute partitioning strategy) Alternatively, it can be positioned through the use of a more holistic approach that outlines the pooled set of key attributes but does not map each subset to the respective parent brands (hereinafter, a unified positioning strategy) Previous research shows that the design of the communication strategy used to position a brand alliance influences how customers interpret the joint presentation of two brands and the relationship between their respective product categories (Samu, Krishnan, and Smith 1999) Specifically, a bottom-up communication strategy that explicitly highlights the attribute-level contribution of each partner induces customers to use an attribute-based processing approach to interpret an alliance between two brands

Therefore, an attribute partitioning-based positioning rather than a unified or holistic positioning of the cobrand is more likely to increase the salience of the fact that each partner brand, A_1 and A_2, contributed only selectively to the extension This positioning is more likely to induce customers to divide the attribute set of the cobranded extension into subsets, map each subset to the respective parent brand, and thus maintain the perceptual separation between the parent and extension categories The maintenance of intercategory separation under an attribute partitioning strategy is likely to result in a lower evaluation of a counterextension by Brand B than it is under a unified positioning strategy Therefore, I hypothesize the following

H_4 The evaluation of a counterextension by Brand B is lower if the positioning strategy for the previous cobranded extension by Brands A_1 and A_2 is attribute partitioning than if it is unified

Study 1

Overview

Study 1 was designed to test H_1–H_3 regarding the impact of solo-branded versus cobranded extensions on customer evaluation of a counterextension The purpose of the study was not to assess how the two branding strategies—solo branding versus cobranding —influence the evaluation of the first extension by Brand A_1, because the issue has been addressed in prior research Rather, the purpose was to examine how these two strategies influence the evaluation of the second extension, or counterextension, launched subsequently by Brand B into the parent category of Brand A_1 The participants in the study were adults who were intercepted in a shopping area and asked to complete a questionnaire after receiving information about hypothetical brand extensions and counterextensions of real brands I used real brands in the study because I wanted the participants to have some prior beliefs about the relationships between the brands and their respective product categories However, I used hypothetical extensions because I wanted participants to respond to the study manipulations

Pretests

I selected the product categories and the brands used to construct the stimuli for the study on the basis of a series of pretests that were designed to address several objectives The first objective was to find three somewhat-related product categories across which customers perceived (1) extensions and counterextensions to be moderately feasible but not trivial and (2) the skill transferability to be moderately high and reasonably symmetric [3] The second objective was to identify one brand within each category that was well liked and strongly associated with its parent category These considerations helped ensure that participants cared about the brands and were responsive to their extension activity The third objective was to find two brands, A_1 and A_2, that were complementary with respect to key attributes that could be pooled to constitute the key attributes of the third or extension category to which Brand B belonged The fourth objective was to ensure that the solo-branded extension of each parent brand and the cobranded extension were considered feasible The participants in each pretest were adult men and women who were randomly intercepted at a shopping area, they each received \$2 for their participation

Pretests 1 and 2 The objective of the first two pretests was to identify three related categories and one reasonably well-liked brand with a strong brand-to-category relationship in each category In the first pretest, 25 shoppers were presented with a list of brand names of products available in the supermarket The list consisted of brands that focused largely on a single product category The participants were asked to list all the products they associated with each brand name On the basis of this pretest, popcorn, corn crisps, and potato chips were selected as the three product categories. Furthermore, on the basis of the high levels of brand-to-category association that participants reported, Redenbacher's, Bugles, and Jays were selected as the respective brands in these categories. In the second pretest, 20 shoppers were asked to evaluate each of the three chosen brands, on a two-item ("like it a lot/don't like it at all" and "favorable/unfavorable"), seven-point scale. The average evaluation of each of the three brands was moderately high ($\bar{X}_{Jays} = 5.80$, $\bar{X}_{Redenbacher's} = 5.77$, $\bar{X}_{Bugles} = 5.42$).

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[2] If one of the partner brands is extremely weak, the salient attributes of the extension may be drawn more from the stronger partner

[3] If the categories are extremely dissimilar, the evaluation of a counterextension is likely to be unfavorable regardless of the branding strategy that the previous extension adopted However, there are also less likely to be extensions across dissimilar categories

Pretest 3. The objective of the third pretest was to assess the perceptions of intercategory similarity and skill transferability across the popcorn, corn crisps, and potato chips categories. A new sample of 19 shoppers completed a questionnaire. They reported their perceived pairwise similarity among the three categories on a four-item (needs satisfied, occasions used, skills required, and features, ingredients and attributes), seven-point scale (Cronbach's alpha ranged from .88 to .91). The average similarity rating between corn crisps and potato chips ($\bar{X} = 4.30$) and between corn crisps and popcorn ($\bar{X} = 4.12$) was moderately high and statistically indistinguishable ($t_{18} = 1.11$, $p > .10$).

Furthermore, the perceived difficulty for a popcorn manufacturer to make good corn crisps, which was measured on a seven-point scale ("not difficult at all/very difficult"), was moderately high ($\bar{X} = 3.72$) and statistically no different from the perceived difficulty for a corn crisps manufacturer to make good popcorn ($\bar{X} = 3.83$, $t_{18} = -.09$, $p > .10$). Similarly, the perceived difficulty for a potato chips manufacturer to make good corn crisps was moderately high ($\bar{X} = 3.26$) and statistically no different from the perceived difficulty for a corn crisps manufacturer to make good potato chips ($\bar{X} = 3.57$, $t_{18} = .32$, $p > .10$).

Pretest 4. The objective of the fourth pretest was to examine the strength of association between each of the three brands and a set of attributes that characterized the salted-snacks category to which the three brands belonged. An item pool of the salient attributes of the category was generated, and 30 adult shoppers rated each of the three brands on every attribute on a seven-point scale ("do not associate at all/strongly associate"). All three brands rated moderately low on two attributes: healthy and low calorie (mean ratings were between 3.63 and 4.03). Redenbacher's and Bugles were strongly associated with corn (mean ratings were 5.43 and 5.30, respectively), whereas Jays was not (mean rating was 2.14). In contrast, Jays was strongly associated with potato (mean rating was 5.03), whereas Redenbacher's and Bugles were not (mean ratings were 2.36 and 2.76, respectively). Furthermore, Redenbacher's was rated lower on crunchy (mean rating was 4.10) than were both Bugles and Jays (mean ratings were 5.76 and 5.53, respectively). The ratings for the three brands on the remaining attributes—snack, salty, delicious, for parties, inexpensive, and convenient—were similar and moderately high. The pretest provided corn and crunchy as the two attributes that were related to the popcorn and potato chips brands, respectively. Furthermore, both attributes were related to the corn crisps brand.

The participants also rated the feasibility of an extension into the corn crisps category under four alternative branding scenarios on a three-item ("not difficult at all/very difficult," "not feasible at all/feasible," and "not advisable at all/advisable"), seven-point scale. The four brand names were Jays, Redenbacher's, Jays Redenbacher's, and Redenbacher's Jays. Participants also reported their evaluation of the extensions using a four-item ("low quality/high quality," "inferior/superior," "negative/positive," and "not likely to try/very likely to try") scale. The feasibility ratings of the extension were similar (mean ratings were between 4.42 and 4.62) across the four branding scenarios. In addition, the evaluation of the extension was similar across the four scenarios (mean ratings were between 4.58 and 4.88). On the basis of the pretests, I selected popcorn and potato chips as the two parent categories and Redenbacher's and Jays, respectively, as the two parent brands. I also selected corn crisps as the extension category and Bugles as the brand that launched the counterextension.

Procedure and Measurement

The participants in the main study were 150 adult men and women who were intercepted in a shopping area and were given information about hypothetical brand extensions and counterextensions of real brands. Two factors were manipulated in a 5 × 2 between-subjects design. The first factor was the brand name under which the first extension was launched into the corn crisps category. This factor was manipulated at five levels: Jays, Redenbacher's, Jays Redenbacher's, Redenbacher's Jays, and control. There was no mention of a previous or first extension in the control condition (see Figure 1, Panel A). The second factor was the product category (popcorn versus potato chips) into which the counterextension was launched under the Bugles brand name.

The participants, who were each paid $5 for their cooperation, were randomly assigned to the various conditions, and they individually completed the study at their own pace. The cover story that accompanied the questionnaire contained an excerpt, supposedly from an article in a popular business magazine, about new products that were recently introduced into the marketplace. It described seven hypothetical brand extensions of real brands that were either successful and well received or unsuccessful and poorly received by the market. Six of these seven products, which were divided into two equal groups of successful and failed products, were held constant across the ten conditions. The seventh product was the focal successful extension into the corn crisps category and was manipulated across the treatments according to the experimental design. The story also listed two new products that were soon to be launched in the market. One of these was held constant across all conditions. The other was a brand extension of Bugles into either the potato chips or the popcorn category. The participants were told that the two new products were not yet available but that their responses toward one of them were of interest.

Dependent Measures

The participants provided data on several measures, including their overall evaluation of the Bugles counterextension, on a 4-item ("low quality/high quality," "inferior/superior," "negative/positive," "not likely to buy/very likely to buy"), seven-point scale (Cronbach's $\alpha = .90$). They also reported their perceptions of the similarity between the corn crisps category and the category into which the Bugles counterextension was launched on a four-item (needs satisfied, occasions used, skills required, and features, ingredients and attributes), seven-point scale (Cronbach's $\alpha = .91$). They reported their familiarity with the Bugles brand using a three-item (familiar, heard of, can recognize), seven-point scale (Cronbach's $\alpha = .87$), and they were asked if they recalled whether the focal brand extension mentioned in the business story was a success or a failure on a seven-point ("big success/big failure") scale. The last item served as a manipulation check.

Results

I began by examining the participants' reported ratings for whether the focal extension into the corn crisps category was a success or a failure. The mean rating across the eight groups, excluding the two control groups, was high ($\bar{X} = 5.60$), indicating that the participants noted the focal extension to be successful.

Overall evaluation of the brand counterextension. Figure 2 displays the mean evaluation of the Bugles counterextension across the ten conditions. I analyzed the evaluation data using a two-way analysis of variance (ANOVA), the brand name of the first extension and the product category into which the counterextension was launched were the two between-subject factors, and familiarity with Bugles was the covariate. The covariate did not interact with the treatments or the treatment interactions ($p > .10$). The results of the ANOVA show that the treatments had an effect on the overall evaluation of the Bugles counterextension (F(10, 139) = 8.43, $p < .01$). The familiarity covariate was significant (F(1, 139) = 5.35, $p < .05$).

The difference between the mean evaluation of the Bugles counterextension into the popcorn and the potato chips categories was not statistically significant (F(1, 139) = .09, $p > .10$). However, the brand name under which the first extension was launched (F(4, 139) = 6.24, $p < .01$) and its interaction with the counterextension product category (F(4, 139) = 13.47, $p < .01$) had a significant effect on the evaluation of the Bugles counterextension.

Consistent with H_1, the Bugles counterextension into the popcorn category was evaluated more favorably in the condition in which Redenbacher's had previously launched a solo-branded extension into the corn crisps category ($\bar{X} = 5.53$) than in the control condition in which there was no previous extension into the corn crisps category ($\bar{X} = 3.70$, F(1, 27) = 20.03, $p < .01$). Similarly, the Bugles counterextension into the potato chips category was evaluated more favorably in the condition in which Jays had previously launched a solo-branded extension into the corn crisps category ($\bar{X} = 5.41$) than in the control condition in which there was no previous extension ($\bar{X} = 3.80$, F(1, 27) = 36.43, $p < .01$).

Next, I tested H_2 for the Bugles counterextension into the popcorn category by comparing the mean evaluation in the condition in which the previous extension by Redenbacher's was solo branded with the average of the mean evaluation across the two conditions in which the extension was cobranded. I found that the Bugles counterextension into the popcorn category was evaluated less favorably when the previous extension into the corn crisps category was cobranded ($\bar{X} = 4.58$) than when it was solo branded by Redenbacher's (F(1, 41) = 34.51, $p < .01$). I repeated the analysis to test the hypothesis for the Bugles counterextension into the potato chips category. Again, I found that the Bugles counterextension into the potato chips category was evaluated less favorably when the previous extension into the corn crisps category was cobranded ($\bar{X} = 4.52$) than when it was solo branded by Jays (F(1, 41) = 21.99, $p < .01$).

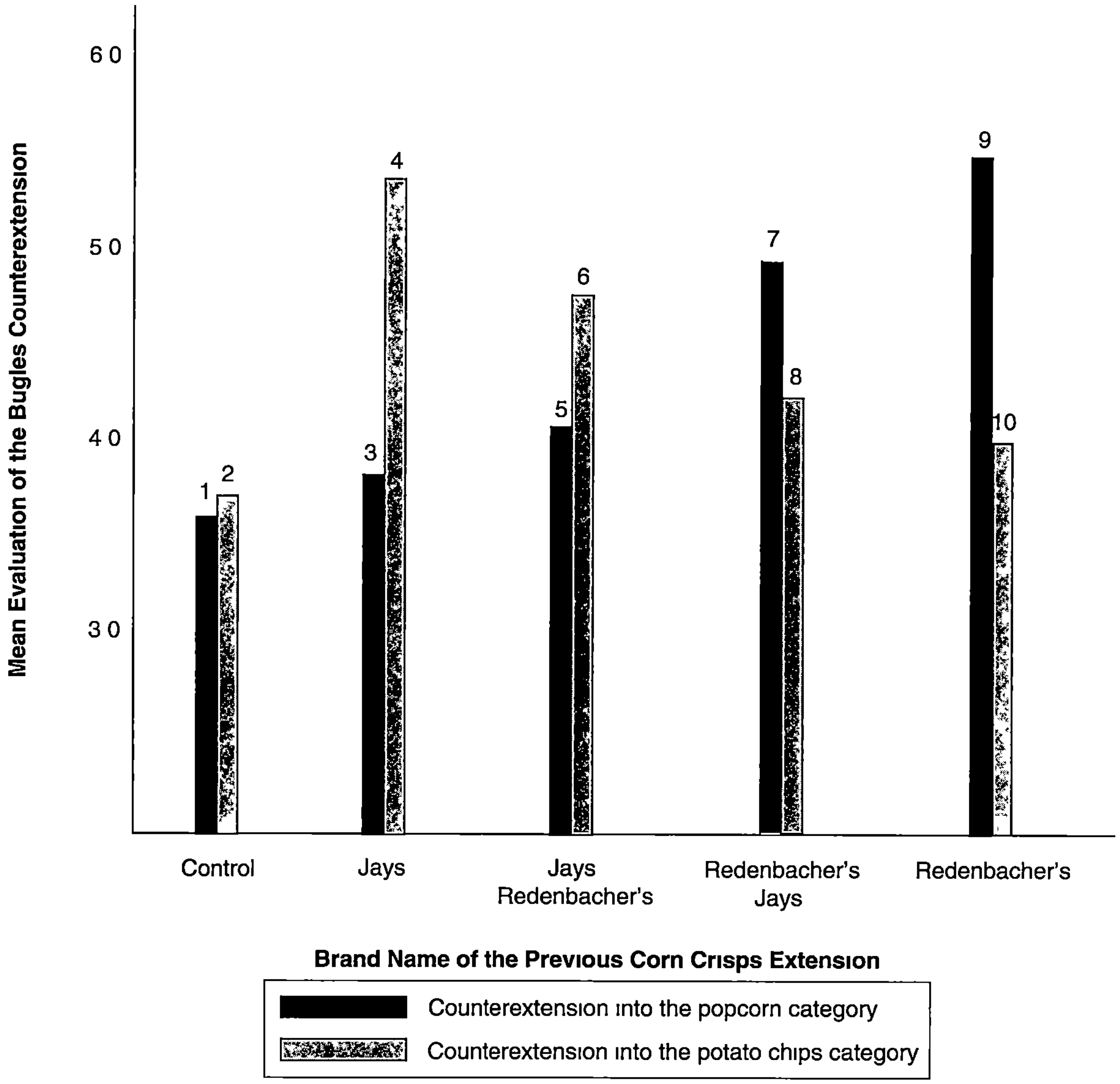
Furthermore, consistent with H_3, I found that the Bugles counterextension into the popcorn category was evaluated more favorably when the preceding extension into the corn crisps category was launched under the Redenbacher's Jays brand name ($\bar{X} = 5.00$) than when it was launched under the Jays Redenbacher's brand name ($\bar{X} = 4.16$, (F(1, 27) = 20.25, $p < .01$). In contrast, the Bugles counterextension into the potato chips category was evaluated less favorably when the preceding extension into the corn crisps category was launched under the Redenbacher's Jays brand name ($\bar{X} = 4.25$) than when it was launched under the Jays Redenbacher's brand name ($\bar{X} = 4.88$, (F(1, 27) = 15.87, $p < .05$).

Finally, I examined whether cobranding the previous extension lowered the evaluation of the counterextension to the same level as that in the control condition in which no extension had previously been launched. Therefore, for both the popcorn and potato chips categories, I separately compared the average of the treatment means for the two cobranding conditions with the treatment mean for the respective control conditions. I found that the difference in the evaluation of the counterextension between the cobranding conditions and the control condition was significant for both the popcorn category (F(1, 41) = 8.22, $p < .01$) and the potato chips category (F(1, 41) = 20.46, $p < .01$).

Similarity. A two-way ANOVA of the reported similarity ratings showed significant treatment effects (F(9, 140) = 7.70, $p < .01$). The main effect of the product category into which the counterextension was launched was not significant (F(1, 140) = .65, $p > .10$). However, the brand name of the previous extension (F(4, 140) = 5.97, $p < .01$) and its interaction with the product category into which the counterextension was launched (F(4, 140) = 11.20, $p < .01$) had a significant effect on the reported similarity ratings.

The similarity between the popcorn and the corn crisps categories was rated higher when Redenbacher's had launched the previous solo-branded extension ($\bar{X} = 5.65$) than it was in the control condition in which there was no previous extension ($\bar{X} = 3.45$, F(1, 28) = 36.79, $p < .01$). The similarity rating was lower when the previous extension was cobranded ($\bar{X} = 4.39$) than when it was solo branded by Redenbacher's (F(1, 42) = 28.50, $p < .01$). Finally, similarity was rated higher when Redenbacher's was the header brand in the previous cobranded extension ($\bar{X} = 4.75$) than when it was the modifier brand ($\bar{X} = 4.03$, F(1, 28) = 6.00, $p < .01$).

FIGURE 2
Study 1: Results Summary for the Impact of Cobranding on the Evaluation of the Counterextension



Notes The evaluation of the Bugles counterextension into the potato chips category was greater when the previous extension by Jays into the corn crisps category was solo branded (4) than when it was cobranded with Redenbacher's (6, 8) The evaluation of the Bugles counterextension into the popcorn category was greater when the previous extension by Redenbacher's into the corn crisps category was solo branded (9) than when it was cobranded with Jays (5, 7) The Bugles counterextension into potato chips was evaluated more favorably when Jays was the header brand in the previous cobranded extension (6) than when it was the modifier brand (8) The counterextension into popcorn was evaluated more favorably when Redenbacher was the header brand (7) than when it was the modifier brand (5)

Likewise, the reported similarity between the potato chips and the corn crisps categories was higher when Jays had previously launched a solo-branded extension ($\bar{X}$ = 5 38) than it was in the control condition in which there was no previous extension ($\bar{X}$ = 4 03, F(1, 28) = 19 66, $p <$ 01) Similarity was rated lower when the previous extension was cobranded ($\bar{X}$ = 4 50) than when it was solo branded by Jays (F(1, 42) = 15 40, $p <$ 01) Finally, similarity was rated higher when Jays was the header brand in the previous cobranded extension ($\bar{X}$ = 4 83) than when it was the modifier brand ($\bar{X}$ = 4 16, F(1, 42) = 4 02, $p <$ 05)

I conducted additional analyses to test whether the perceptions of similarity between the corn crisps category and the parent category into which the counterextension was launched mediated the relationship between the manipulated variables and the evaluation of the Bugles counterextension (Baron and Kenny 1986) I ran seemingly unrelated regressions with intercategory similarity and the evaluation of the Bugles counterextension as the two independent variables and 0–1 dummy variables representing each of the nine conditions, excluding the control condition for the popcorn category The results of this analysis, which appear in the second and third columns of Table 1, show that the experimental treatments had an effect on similarity (i e , the potential mediating variable) and on the evaluation of the counterextension (i e , the dependent variable)

Next, I added similarity to the regression of the evaluation of the counterextension and examined the changes in the parameters of the independent variables The results, which appear in the fourth column of Table 1, show that when similarity was added to the regression model, the parameters for the other variables weakened and were, at best, marginally significant ($p < 10$) However, the parameter for similarity was statistically significant ($p < 01$) These results provide strong evidence in support of the theoretical premise that perceptions of intercategory similarity mediate the relationship between the extension strategy pursued by Brand A_1 and the evaluation of the counterextension by Brand B [4]

Discussion

The results from Study1 support H_1–H_3 regarding the evaluation of brand counterextensions These results can be summarized as follows (see Figure 2)

- The extension by Brand B into the category of Brand A_1 was evaluated more favorably when Brand A_1 had previously launched a successful solo-branded extension into the category of Brand B than when it had not launched an extension (H_1)
- Cobranding the first extension with a partner brand, A_2, resulted in a lower evaluation of a counterextension by Brand B than did solo branding the extension by Brand A_1 (H_2)
- The counterextension was evaluated less favorably when the focal brand, A_1, was the modifier brand rather than the header brand in the previous cobranded extension (H_3)
- Even with cobranding, the counterextension was evaluated more favorably than if no previous extension had been launched at all

The results of the mediation analysis support the theoretical premise that cobranding may lead to a less favorable evaluation of a counterextension because it results in a smaller improvement in the perceptions of similarity between a brand's parent and extension categories than does a solo-branded extension

Study 2

The premise underlying Study 1 was that a successful solo-branded extension improves the perceptions of intercategory similarity and enhances the evaluation of a counterextension By implication, a failed solo-branded extension should preserve the distinction between the parent and extension categories and should not improve the evaluation of the counterextension Therefore, cobranding should result in a lower evaluation of a counterextension relative to a successful solo-branded extension but not relative to a failed solo-branded extension I address this issue in Study 2 and examine whether a counterextension that follows a cobranded extension is evaluated more or less favorably than a counterextension that follows either a successful or a failed solo-branded extension

Design and Procedure

The overall design, cover story, and procedure for Study 2 were similar to those used in Study 1 I used a 4 × 2 between-subjects study design to manipulate the variables of interest The first factor was the previous brand extension activity into the corn crisps category The four levels of this

TABLE 1
Study 1: Mediation Analysis Parameter Estimates

		Evaluation of Bugles Extension[a]	
Variables[b]	**Similarity[a]**	**Similarity Omitted**	**Similarity Included**
Redenbacher's (popcorn)	58**	51**	05
Jays (popcorn)	14	10	– 02
Jays Redenbacher's (popcorn)	15*	13	02
Redenbacher's Jays (popcorn)	34**	35**	08
Redenbacher's (potato chips)	17*	07	– 06
Jays (potato chips)	51**	48**	07
Jays Redenbacher's (potato chips)	36**	31**	02
Redenbacher's Jays (potato chips)	19**	14*	00
Control (potato chips)	15*	02	– 09*
Similarity			80**

*$p < 1$
**$p < 01$
[a]The numbers reported are standardized regression coefficients The parameters for the first two columns are based on seemingly unrelated regression
[b]These are coded as 0–1 dummy variables for each treatment that represents the combination of brand name of the previous extension and the category into which the Bugles extension was launched

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[4] The results from repeating the mediation analysis using a step-down ANOVA also provide evidence for strong partial mediation of similarity Specifically, when I ran a two-way ANOVA of the evaluation data with familiarity and similarity as covariates, the effects of familiarity ($F(1, 138) = 4\ 78, p < 01$) and product category ($F(1, 138) = 2\ 54, p > 10$) were not significant, and the effect of brand name of the previous extension was not significant ($F(4, 138) = 1\ 42, p > 10$) The interaction between the brand name and the product category was still significant ($F(4, 138) = 2\ 64, p < 05$), but it was much weaker The effect of similarity was significant ($F(1, 138) = 261\ 97, p < 01$)

factor were (1) failed solo-branded extension, (2) successful solo-branded extension, (3) successful cobranded extension with the parent brand as the header, and (4) a control condition in which there was no previous extension The second factor was the parent category (popcorn versus potato chips) into which the counterextension was launched A total of 160 adults who were intercepted at a shopping area participated in the study, they were randomly assigned to the experimental conditions and were paid $5 for their cooperation The key dependent measure was the overall evaluation of the Bugles counterextension (Cronbach's α = 90)

Results

Overall evaluation of the brand counterextension As a manipulation check, I compared the reported ratings for the success versus failure of the previous extension into the corn crisps category The extension was rated more successful in the success conditions ($\overline{X}$ = 5 47) than in the failure conditions ($\overline{X}$ = 1 77, t_{119} = 22 79, p < 01), which shows that the manipulation of the success versus failure of the previous extension was successful

Figure 3 displays the mean evaluation of the Bugles counterextension across the eight conditions I analyzed the evaluation data using a two-way ANOVA with the previous extension activity and the counterextension category as the two between-subject factors and familiarity with Bugles as a covariate The covariate did not interact with the treatments or the treatment interactions (p > 10) The results of the ANOVA show that the treatments had an effect on the overall evaluation of the Bugles counterextension (F(8, 151) = 7 80, p < 01) The effect of the familiarity covariate was significant (F(1, 151) = 14 25, p < 01) The main effect of the product category into which the counterextension was launched was not significant (F(1, 151) = 24, p > 10) This shows that the Bugles counterextensions into the popcorn and the potato chips categories were evaluated similarly However, the main effect of the previous brand extension activity was significant (F(3, 151) = 15 70, p < 01), whereas its interaction with the counterextension product category was not (F(3, 151) = 27, p > 10)

The Bugles counterextension into the popcorn category was evaluated more favorably when the preceding solo-branded extension into the corn crisps category by Redenbacher's was a success ($\overline{X}$ = 5 35) than when it was a failure ($\overline{X}$ = 4 06, F(1, 37) = 14 11, p < 01) Similarly, the Bugles counterextension into the potato chips category was evaluated more favorably when the solo-branded extension into the corn crisps category by Jays was a success ($\overline{X}$ = 5 38) than when it was a failure ($\overline{X}$ = 4 32, F(1, 37) = 13 22, p < 01)[5]

Furthermore, as in Study 1, the evaluation of the counterextension into the popcorn category was less favorable when the preceding extension into the corn crisps category was launched jointly under the Redenbacher's Jays brand name ($\overline{X}$ = 4 73) than when it was successfully launched by Redenbacher's ($\overline{X}$ = 5 35, F(1, 37) = 10 90, p < 01) Similarly, the evaluation of the counterextension into the potato chips category was less favorable when the preceding extension was launched under the Jays Redenbacher's brand name ($\overline{X}$ = 4 79) than when it was launched as a solo-branded extension by Jays (F(1, 37) = 4 11, p < 05)

More important, the counterextension into the popcorn category was evaluated more favorably when the previous extension by Redenbacher's was cobranded than when it was solo-branded but a failure (F(1, 37) = 5 20, p < 05) Similarly, the Bugles counterextension into the potato chips category was evaluated more favorably when the previous extension by Jays was cobranded than when it was solo branded but a failure (F(1, 37) = 4 79, p < 05)

Similarity A two-way ANOVA of the similarity data shows that the main effect of the prior extension activity was significant (F(3, 152) = 22 03, p < 01) The main effect of the product category into which the counterextension was launched (F(1, 152) = 74, p > 10) and its interaction with the prior extension activity (F(3, 152) = 47, p > 10) were both not significant

The mean similarity rating was higher when the solo-branded extension by Redenbacher's was a success ($\overline{X}$ = 5 71) than when it was a failure ($\overline{X}$ = 4 01, F(1, 38) = 39 98, p < 01) The mean similarity rating was higher when the solo-branded extension by Jays was a success ($\overline{X}$ = 5 67) than when it was a failure ($\overline{X}$ = 4 38, F(1, 38) = 38 89, p < 01) However, the difference in similarity between the condition in which Redenbacher's solo-branded extension was a failure and the control condition ($\overline{X}$ = 4 33, F(1, 38) = 78, p > 10) was not significant Likewise, the difference in similarity between the condition in which the Jays solo-branded extension was a failure and the control condition ($\overline{X}$ = 4 51, F(1, 38) = 21, p > 10) was not significant Finally, similarity was lower when the preceding extension was launched jointly under the Redenbacher's Jays brand name ($\overline{X}$ = 4 97) than when it was successfully launched by Redenbacher's (F(1, 38) = 10 79, p < 01) Similarity was also lower when the preceding extension was launched jointly under the Jays Redenbacher's brand name ($\overline{X}$ = 4 95) than when it was successfully launched by Jays (F(1, 38) = 8 56, p < 01)

Next, I conducted additional analyses to test for the mediating effect of similarity, using a procedure similar to the one I adopted for Study 1 I first ran seemingly unrelated regressions with intercategory similarity and the evaluation of the Bugles counterextension as the two independent variables and 0–1 dummy variables representing each of the seven conditions, excluding the control condition for the popcorn category The results of this analysis appear in the second and third columns of Table 2 These results show that the experimental treatments had an effect on similarity (i e , the potential mediating variable) as well as on the evaluation of the counterextension (i e , the dependent variable)

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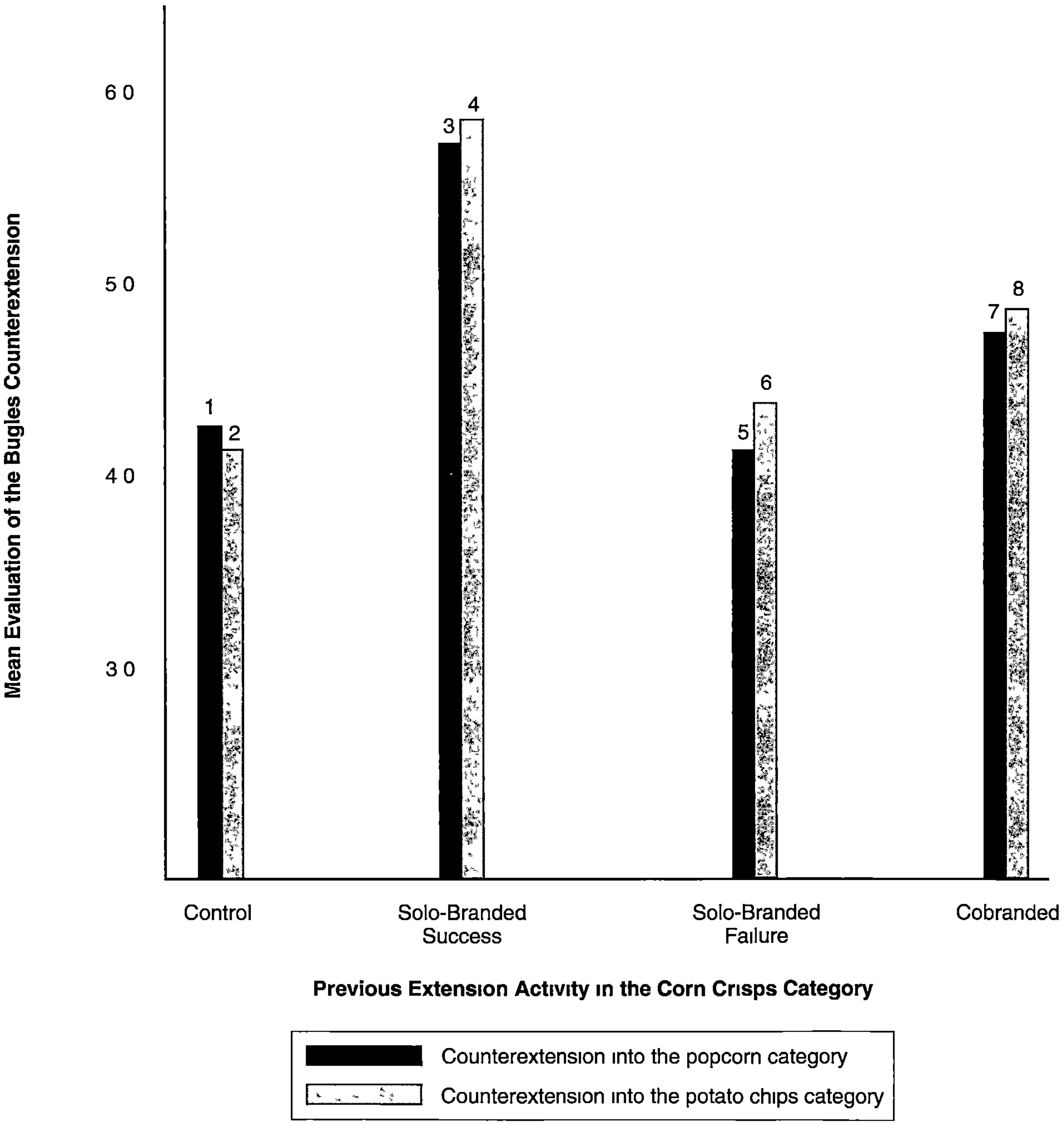
[5] There was no difference between the evaluation of the popcorn counterextension in the condition in which the preceding solo-branded extension into the corn crisps category by Redenbacher's was a failure and that in the control condition in which there was no preceding extension ($\overline{X}$ = 4 15, F(1, 37) = 37, p > 10) Similarly, there was no difference between the evaluation of the potato chips counterextension in the condition in which the preceding solo-branded extension by Jays was a failure and that in the control condition in which there was no preceding extension ($\overline{X}$ = 4 10, F(1, 37) = 53, p > 10)

FIGURE 3

Study 2: Results Summary for the Impact of Cobranded Versus Successful and Failed Solo-Branded Extensions on the Evaluation of the Counterextension



Notes The evaluation of the counterextensions was greater than that in the control conditions (1–2) when the previous solo-branded extension by the focal brand was a success (3–4) but not when it was a failure (5–6) The evaluation of the counterextension in the conditions in which the focal brand's previous extension was cobranded (7–8) was smaller than that in the conditions in which the focal brand's previous solo-branded extension was a success (3–4) but greater than that in the conditions in which the previous solo-branded extension was a failure (5–6)

However, when I added similarity to the regression of the evaluation of the counterextension, the parameters for the other variables weakened and were, at best, marginally significant ($p < 10$) However, the parameter for similarity was statistically significant ($p < 01$) These results are consistent with the premise that perceptions of intercategory similarity mediate the relationship between the branding strategy and the outcome of the previous extension and the evaluation of the counterextension[6]

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[6] The results from repeating the mediation analysis using a step-down ANOVA also provide evidence for a mediating effect of similarity Specifically, when I analyzed the evaluation data using a two-way ANOVA with familiarity and similarity as covariates, the

TABLE 2
Study 2: Mediation Analysis Parameter Estimates

		Evaluation of Bugles Extension[a]	
Variables[b]	Similarity[a]	Similarity Omitted	Similarity Included
Redenbacher's failure (popcorn)	– 10	– 03	03
Redenbacher's success (popcorn)	43***	38***	14*
Redenbacher's Jays success (popcorn)	20**	19**	08
Jays failure (potato chips)	01	06	05
Jays success (potato chips)	42***	40***	16*
Jays Redenbacher's success (potato chips)	19**	20***	10
Control (potato chips)	06	– 16	– 04
Similarity			56***

*$p < 1$
**$p < 05$
***$p < 01$
[a]The numbers reported are standardized regression coefficients The coefficients for the first two columns are based on seemingly unrelated regression
[b]These are coded as 0–1 dummy variables for each treatment that represents the combination of brand name and outcome of the previous extension and the category into which the Bugles extension was launched

Discussion

The results of Study 2 suggest that cobranding results in a lower evaluation of a counterextension relative to a successful solo-branded extension but not relative to a failed solo-branded extension The results show that a failed solo-branded extension does not lead to an improvement in customer evaluation of a counterextension, because it is less likely to change perceptions of similarity between the parent and extension categories

Study 3

In Study 1, I used hypothetical extensions and counterextensions of real brands to test H_1–H_3 Although the use of real brand names made the study realistic and gave it some degree of external validity, the results may have been driven in part by participants' brand-specific associations with the brands that I used to construct the stimuli To rule out non-category-related associations as potential explanations for the findings, I conducted a third study with the same context as in Study 1 but without real brand names

Design and Procedure

The stimuli and the cover story for the study were similar to those used in Study 1 except for one difference The products in the cover story and in the questionnaire were referred to by their category names rather than their brand names For example, I used the descriptor "a popcorn brand" instead of the brand name "Redenbacher's" to refer to one of the parent brands I used a 4 × 1 between-subjects study design and manipulated the brand name of the previous extension into the corn crisps category at four levels (1) a popcorn brand, (2) a potato chips brand, (3) a joint extension by a popcorn and a potato chips brand, and (4) a control There was no mention of a previous extension into the corn crisps category in the control condition A total of 72 adult men and women, who were intercepted at a shopping area, participated in the study, and they were each paid $5 for their cooperation The key dependent measure was the overall evaluation of a counterextension into the popcorn category by a corn crisps brand (Cronbach's $\alpha =$ 93)

Results

Overall evaluation of the brand counterextension Figure 4 displays the mean evaluations of the counterextension into the popcorn category across the four treatments A one-way ANOVA of the evaluation data shows a significant treatment effect (F(3, 68) = 7 56, $p >$ 01) Consistent with H_1, the focal counterextension into the popcorn category was evaluated more favorably when a popcorn brand had launched the preceding brand extension into the corn crisps category ($\bar{X}$ = 5 23) than it was in the control condition in which there was no mention of any preceding extension ($\bar{X}$ = 3 84, F(1, 34) = 14 37, $p <$ 01)

Furthermore, consistent with H_2, the evaluation of the counterextension was less favorable when the preceding extension was launched jointly as a cobranded extension of a popcorn brand and a potato chips brand ($\bar{X}$ = 4 61) than when it was launched as a solo-branded extension by a popcorn brand (F(1, 34) = 6 06, $p <$ 01) Finally, the evaluation of the counterextension in the control condition was statistically indistinguishable from that in the condition in which the preceding extension was launched by a brand from the potato chips product-market, an unrelated category ($\bar{X}$ =

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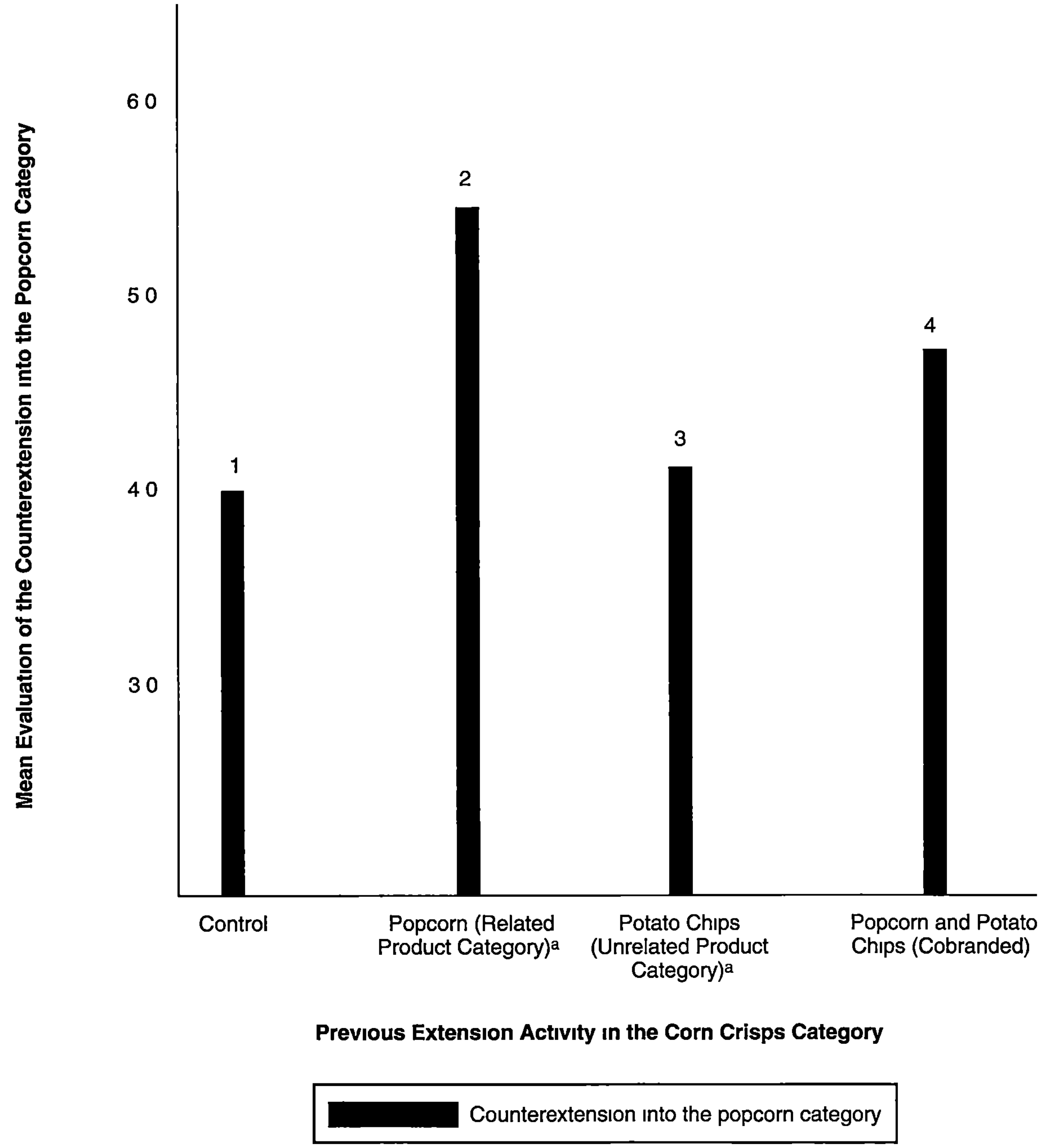
effects of familiarity (F(1, 150) = 1 72, $p >$ 1) and product category (F(1, 150) = 01, $p >$ 10) were not significant The effect of prior extension activity was significant but substantially weakened (F(3, 150) = 2 91, $p <$ 05), and its interaction with the product category was not significant (F(3, 150) = 21, $p >$ 10) The effect of similarity was significant (F(1, 150) = 49 24, $p <$ 01) However, as I reported previously, the prior extension activity had a significant effect in the ANOVAs for both evaluation (i e , the dependent variable) and similarity (i e , the mediating variable)

FIGURE 4
Study 3: Results Summary for the Impact of Cobranding Versus Solo Branding on the Evaluation of the Counterextension



aThe terms "related" and "unrelated" are used here to mean that a previous corn crisps extension by a popcorn brand, but not by a potato chips brand, improved the evaluation of a subsequent popcorn extension by a corn crisps brand.

Notes: The counterextension was evaluated less favorably when the focal brand's previous extension into the category of the brand that launched the counterextension was cobranded (4) than when it was solo branded (2). The mean evaluation of the counterextension in the condition in which a product from an unrelated category had previously extended into the category of the brand that launched the counterextension (3) was no different from that in the control condition (1).

4.19, F(1, 34) = .97, $p > .10$). To summarize, a previous corn crisps extension by a popcorn brand, but not a potato chips brand, improved the evaluation of a subsequent popcorn extension by a corn crisps brand. However, the evaluation of the popcorn extension was lowered if the previous corn crisps extension was cobranded by a popcorn and a potato chips brand.[7]

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[7] The key results of Study 3 were replicated in a follow-up study with 80 participants that involved a different set of products. The

Similarity The results of a one-way ANOVA of the similarity data show a significant treatment effect (F(3, 68) = 8 78, $p < 01$) The mean similarity in the control condition ($\bar{X} = 3\ 84$) was lower than it was in the condition in which the previous solo-branded extension was launched by a popcorn brand ($\bar{X} = 5\ 22$, F(1, 34) = 25 85, $p < 01$), but it was statistically indistinguishable from that in the condition in which the previous solo-branded extension was launched by a potato chips brand ($\bar{X} = 4\ 23$, F(1, 34) = 1 82, $p > 10$) The similarity in the condition in which the previous extension was cobranded was lower ($\bar{X} = 4\ 68$) than that in the condition in which the extension was solo branded by a popcorn brand (F(1, 34) = 3 85, $p < 05$)

The results from a mediation analysis, which I conducted using a procedure similar to the one I used in the previous two studies, appear in Table 3 They show that both intercategory similarity ratings and overall evaluation ratings in the conditions in which the prior extension was launched by the popcorn brand or jointly by the popcorn and the potato chips brands were higher than were those in the control condition ($p < 01$) However, when similarity was added as an independent variable to the regression model for overall evaluation, the parameters for the other variables weakened and were no longer statistically significant ($p > 10$ for each) However, the parameter for similarity was statistically significant ($p < 01$)[8]

Discussion

The results from Study 3 closely parallel those from Study 1 and provide further support to the hypothesis that the evaluation of a brand counterextension is lower when the preceding extension is cobranded with a partner than when it is solo branded This effect was observed both with real brand names and without them The results in both cases support the theoretical premise that intercategory similarity mediates the relationship between the choice of a solo-branding versus a cobranding extension strategy and the evaluation of a counterextension Furthermore, in both studies, although cobranding lowered the evaluation of a counterextension, it was still higher than that in the condition in which the focal brand had not launched an extension at all When this finding is interpreted in conjunction with the results of the mediation analyses, it suggests that cobranding reduces, but does not fully suppress, the increase in the intercategory similarity that results from launching a successful extension

Study 4

Study 4 was designed to test H_4 regarding the impact of alternative communication and positioning strategies for a cobranded extension on the evaluation of a counterextension It specifically focuses on whether a positioning strategy that explicitly communicates the attribute-level contribution of the two partner brands to the cobranded extension results in a lower evaluation of the counterextension than a strategy that does not

Design and Procedure

The stimulus material in the study was the same as that used in Study 1, except that the cover story described not only the cobranded extension into the corn crisps category but also the headline and the slogan from its advertisement I used a 2 × 2 between-subjects design with a control group The first factor was the brand name for the extension into

TABLE 3
Study 3: Mediation Analysis Parameter Estimates

		Evaluation of Bugles Extension[a]	
Variables[b]	**Similarity[a]**	**Similarity Omitted**	**Similarity Included**
Potato chips	20	16	09
Popcorn	62*	58*	20
Potato chips and popcorn	37*	32*	15
Similarity			47*

*$p < 01$

[a]The numbers reported are standardized regression coefficients The parameters for the first two columns are based on seemingly unrelated regression

[b]These are coded as 0–1 dummy variables

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study design and manipulations were similar to those in Study 3 except that Brand A_1 belonged to the face wash category, Brand A_2 to the body lotion category, and Brand B to the body wash category The evaluation of a counterextension by a body wash brand into the face wash category was higher when the previous extension by a face wash brand into the body wash category was solo branded ($\bar{X} = 5\ 38$) than when it was cobranded with a body oil brand ($\bar{X} = 4\ 87$, F(1, 38) = 11 92, $p < 01$) The evaluation of the counterextension in the control condition in which there was no previous extension into the face wash category ($\bar{X} = 4\ 42$) was lower than that in the condition in which a face wash brand had previously launched a solo-branded extension into the body wash category (F(1, 38) = 19 75, $p < 01$), but it was statistically indistinguishable from the evaluation in the condition in which a body oil brand had previously launched an extension into the face wash category ($\bar{X} = 4\ 68$, F(1, 38) = 92, $p > 10$) Additional analyses showed that the perceptions of similarity between the face wash and body wash categories mediated the relationship between the manipulated variables and the evaluation of the counterextension

[8] The results from repeating the mediation analysis using a step-down ANOVA were consistent with those using a regression-based approach Specifically, when I analyzed the evaluation data for the four cells using a one-way ANOVA with similarity as a covariate, the effect of the treatments was no longer significant (F(3, 67) = 92, $p > 10$) The effect of similarity was statistically significant (F(1, 67) = 46 02, $p < 01$) As I reported previously, the treatments had a significant effect in the ANOVAs for both evaluation (i e , the dependent variable) and similarity (i e , the mediating variable)

the corn crisps category, which I manipulated at two levels Jays Redenbacher's and Redenbacher's Jays The second factor was the positioning statement, which I also manipulated at two levels partitioned and unified In the control group, there was no mention of a preceding extension into the corn crisps category

The headline in each of the four conditions, excluding the control group, was "The new crunch in the bowl" In the first unified condition with the Redenbacher's Jays brand name, the slogan for the extension into the corn crisps category was "The crunchy corn from Redenbacher's Jays" In the second unified condition, the brand name in the slogan was reversed to Jays Redenbacher's In the first partitioned condition with the Jays Redenbacher's brand name, the slogan was "The crunch of Jays and the corn of Redenbacher's" In the second partitioned condition, the two halves of the slogan were reversed The key measure was the overall evaluation of the counterextension into the popcorn category (Cronbach's $\alpha = 92$) The participants in the study were 125 adult men and women, who were intercepted in a shopping area, randomly assigned to the various conditions, and paid $5 for their cooperation

Pretests

The positioning statements were pretested with two random samples of 15 customers each to ensure that the statements were similar in terms of their overall likeability The customers were drawn from the same population from which the sample for the main study was drawn, and they were each paid $2 for their cooperation The first sample evaluated the two alternative positioning statements or slogans for the Jays Redenbacher's brand name, and the second sample evaluated the statements for the Redenbacher's Jays brand name, both groups used a four-item (likeable, memorable, stands out, and clear message), seven-point scale The mean evaluation of the unified statement for the Jays Redenbacher's brand ($\overline{X} = 4\ 26$) was statistically indistinguishable from the mean evaluation of the partitioned statement ($\overline{X} = 4\ 35$, $t_{14} = 25$, $p > 10$) Similarly, the mean evaluation of the unified statement for the Redenbacher's Jays brand ($\overline{X} = 4\ 28$) was statistically indistinguishable from the mean evaluation of the partitioned statement ($\overline{X} = 4\ 38$, $t_{14} = 17$, $p > 10$)

Results

Overall evaluation of the brand counterextension Figure 5 displays the mean evaluations of the counterextension into the popcorn category across the five conditions In line with Broniarczyk and Gershoff's (2003) work, I computed the difference between the reported overall evaluation ratings in each of the four experimental conditions and the average evaluation in the control condition [9] I analyzed the data on these difference scores using a 2 × 2 ANOVA with familiarity with the counterextending brand as a covariate ($F(4, 95) = 4\ 75$, $p < 01$) The familiarity covariate ($F(1, 95) = 1\ 95$, $p > 10$) and the brand name ($F(1, 95) = 1\ 36$, $p > 10$) did not have a significant effect The main effect of the positioning strategy ($F(1, 95) = 13\ 02$, $p < 01$) was significant, and its interaction with the brand name was marginally significant ($F(1, 95) = 2\ 65$, $p < 10$)

The difference score averaged across the two partitioned conditions ($\overline{X} = 15$) was statistically indistinguishable from zero ($t_{49} = 86$, $p > 10$) and lower than the difference score averaged across the two unified conditions ($\overline{X} = 75$, $F(1, 97) = 6\ 72$, $p < 01$) In the two partitioned conditions, the difference score in the condition in which Redenbacher's was the header brand ($\overline{X} = 12$) was statistically indistinguishable from that in the condition in which it was the modifier brand ($\overline{X} = 20$, $F(1, 47) = 08$, $p > 10$) This finding shows that with a partitioned positioning strategy, the evaluation of the counterextension did not depend on whether the parent brand in the preceding extension was a header brand or a modifier brand However, in the two unified conditions, the difference score in the condition in which Redenbacher's was the header brand ($\overline{X} = 1\ 09$) was higher than that in the condition in which it was the modifier brand ($\overline{X} = 50$, $F(1, 47) = 22\ 94$, $p < 01$)

Similarity For each of the four conditions, excluding the control, I computed the difference scores for similarity using a procedure that was similar to the one I used for computing the difference scores for the overall evaluation of the counterextension The results from a two-way ANOVA of the data on the difference scores for similarity data showed a significant effect ($F(3, 96) = 4\ 54$, $p < 01$) The average difference score for similarity for the two partitioned conditions ($\overline{X} = 29$) was statistically indistinguishable from zero ($t_{49} = 1\ 63$, $p > 10$) However, the average difference score for the two unified conditions ($\overline{X} = 1\ 00$) was higher than that in the control condition ($t_{49} = 7\ 19$, $p < 01$) Furthermore, in the partitioned conditions, the difference score for similarity in which Redenbacher's was the header brand ($\overline{X} = 23$) was statistically indistinguishable from that in the condition in which it was the modifier brand ($\overline{X} = 35$, $F(1, 48) = 11$, $p > 10$)

I conducted a mediation analysis using the data from the four experimental conditions on the difference scores for both overall evaluation and similarity The results, which appear in Table 4, indicate that the dummy variables that represent the three conditions, excluding the unified condition with the Redenbacher's Jays brand name, had a significant impact on the difference scores for similarity (i e , the potential mediating variable) and the difference scores for evaluation (i e , the dependent variable) ($p < 10$ or better) However, when the difference score for similarity was added to the regression model for the difference score for evaluation, the parameters for the other variables weakened However, the parameter for the difference score for similarity was statistically significant ($p < 01$) [10]

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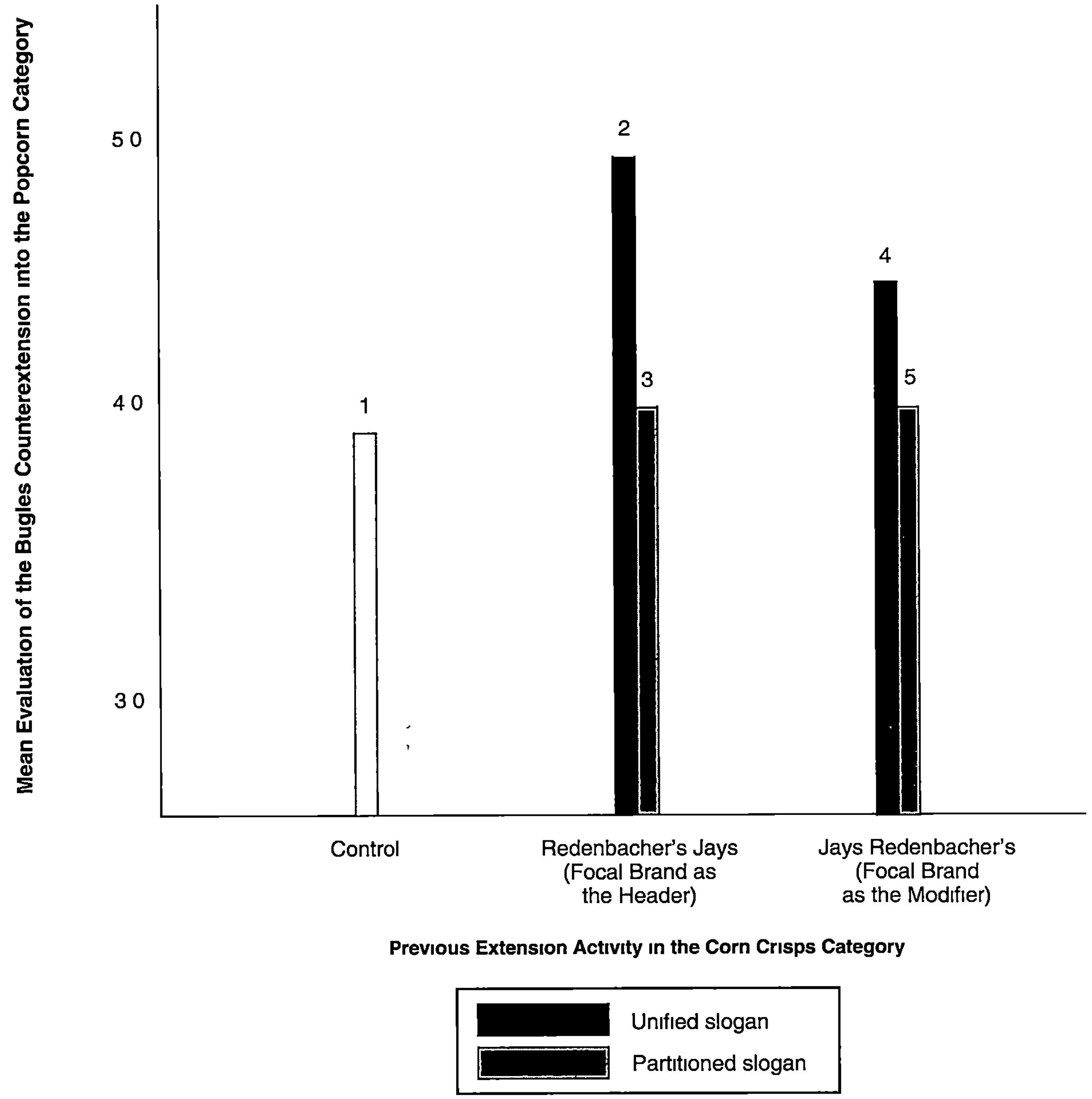
[9] The average evaluation of the counterextension in the control condition was 3 87

[10] The results from repeating the mediation analysis using a step-down ANOVA were consistent with those using a regression-based approach Specifically, when I analyzed the difference scores for evaluation data for the four cells using a two-way ANOVA with familiarity and similarity as covariates, the effect of the positioning strategy was substantially smaller ($F(1, 94) = 4\ 51$, $p < 05$) The effect of the brand name and its interaction with the positioning strategy were not statistically significant ($p > 10$) The coefficient for the difference score for similarity was statistically significant ($F(1, 94) = 30\ 90$, $p < 01$) However, as I reported pre-

FIGURE 5
Study 4: Results Summary for the Impact of Unified Versus Partitioned Positioning of a Cobranded Extension on the Evaluation of a Counterextension



Notes In the unified condition, the positioning statement for the previous Redenbacher's Jays cobranded extension was "The Crunchy Corn from Redenbacher's Jays" In the partitioned condition with the same brand name, the slogan was "The Corn of Redenbacher's and the Crunch of Jays" The slogans under the unified versus partitioned conditions for the Jays Redenbacher's extension were constructed analogously The evaluation of the counterextension was greater in the two unified conditions (2, 4) than in the two partitioned conditions (3, 5) The brand name of the previous cobranded extension had an impact on the evaluation of the counterextension in the unified condition but not in the partitioned conditions

Discussion

The results of Study 4 have two important implications First, they demonstrate that a positioning and communication strategy that explicitly partitions the key attributes of a cobranded extension and relates them to the respective partner brands lowers the evaluation of a counterextension Second, they show that under an attribute partitioning strategy, the evaluation of the counterextension may not depend on whether the focal brand serves as the header or the modifier brand in the previous cobranded extension Taken together, the results imply that an attribute partitioning strategy benefits both partner brands, A_1 and A_2, and may result in a lower evaluation of a counterextension into the parent category of either one Furthermore, such a positioning strategy

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viously, the treatments had a significant effect in the ANOVAs for both evaluation (i e , the dependent variable) and similarity (i e , the mediating variable)

TABLE 4
Study 4: Mediation Analysis Parameter Estimates

		Evaluation of Bugles Extension[a]	
Variables[b]	Similarity[a]	Similarity Omitted	Similarity Included
Jays Redenbacher's (partition)	– 34***	– 38***	– 21**
Redenbacher's Jays (partition)	– 39***	– 42***	– 23**
Jays Redenbacher's (unified)	– 21*	– 26*	– 15
Similarity			50***

*p < 1
**p < 05
***p < 01
[a] The numbers reported are standardized regression coefficients The parameters for the first two columns are based on seemingly unrelated regression The analysis was conducted using difference scores for both overall evaluation and similarity
[b] The treatments are coded as 0–1 dummy variables

might also provide some design flexibility for the crafting of the cobranded extension It may enable the partners to choose the header and modifier brands on the basis of other considerations, such as improving the attribute profile of their cobranded extension

Discussion

This research contributes to the brand management literature by demonstrating the differential impact of solo-branded versus cobranded extensions on customer evaluation of brand counterextensions The key finding from a series of studies is that a counterextension into a brand's parent category is likely to be evaluated less favorably when the prior extension launched by the focal brand is cobranded than when it is solo branded This finding suggests that the strategic choice between solo branding versus cobranding influences the evaluation not only of a brand's own extension (Park, Jun, and Shocker 1996, Rao and Ruekert 1994) but also of counterextensions into its parent category

The studies show that the discrepancy between the evaluations of counterextensions following the two alternative branding strategies results from the differences in the levels of postextension perceptual similarity between a brand's parent and extension categories Specifically, a successful solo-branded extension results in a greater improvement in the perceptions of intercategory similarity than does a cobranded extension A brand in the extension category benefits from the relatively greater increase in the psychological proximity between the two categories following a solo-branded extension, because its counterextension is evaluated more favorably than if the previous extension was cobranded

Managerial Implications

A key implication of this research is that a brand extension decision should perhaps be evaluated in a broader context of a sequence of extensions and counterextensions The extension strategy must account for the risk to the parent brand from potential counterextensions and should be appropriately adjusted to manage this risk Although a firm that launches the initial extension can potentially take several actions to manage the threat from counterextensions, this research shows that cobranding the extension is one strategy that helps mitigate the risk that arises from a favorable evaluation of future counterextensions

The Benefits of Cobranded Extensions

The findings from the studies reported herein suggest that the total benefit from cobranding is greater than what has been identified in previous research Specifically, not only does cobranding help improve the attribute profile of an extension and have a positive reciprocal effect on the equity of the partner brands (Park, Jun, and Shocker 1996, Rao and Ruekert 1994, Simonin and Ruth 1998), it may also protect each partner brand against future counterextensions Taken together, these findings suggest that cobranding is a key strategic option that enables marketers to craft a balanced brand strategy that not only facilitates extensions-based revenue growth but also provides some protection from counterextensions

Unlike the case of a solo-branded extension, the revenue gains from a cobranded extension are shared with a partner brand Although this research does not delve into questions about the trade-off between the loss to a potential counterextension and the loss from revenue sharing with a partner brand, the results suggest that cobranding is particularly suited for brands that are strongly associated with their parent categories A solo-branded extension of such brands is likely to increase the counterextension risk by improving intercategory similarity more than a brand that is only weakly associated with the parent category

Although the studies point to some additional benefits from cobranding, it is important to note that the purpose of this research was not to explore whether cobranding is a superior extension strategy to solo branding It was limited to exploring the potential differences in the counterextension risk faced by a brand under the two alternative branding scenarios The overall choice between the two strategic options must be made on the basis of the expected returns from the alternatives, the levels of overall risk, and other organizational and environmental contingencies that might favor one strategy over another However, the findings from this research better articulate the extent of overall risk with respect to the two strategies that marketers should take into account when selecting an extension strategy They suggest that cobranding can potentially play a defensive role and contribute to mitigating the risk to the parent brand from future counterextensions

Selecting a partner brand A critical issue in the development of a cobranded extension is the selection of a partner brand The findings reported herein provide a new perspective on this issue and complement previous research that suggests that a partner brand should be selected on the basis of its reputation and its ability to send quality signals (Rao and Ruekert 1994, Rao, Qu, and Ruekert 1999) The findings also suggest that it is useful to select a partner that enables customers to divide the key attributes of the cobranded extension easily into two subsets and to associate each subset with the respective partner brands An enhancement in the customer's ability to partition the key attributes of the cobranded extension is likely to result in a less favorable evaluation of a future counterextension Indeed, a positioning and communication strategy that explicitly partitions the attributes into these subsets might also help the partner brands by further lowering the evaluation of counterextensions

However, it should be noted that it might not always be possible or feasible for a brand to find a reputed and willing partner brand in a complementary category for the development of a cobranded extension To that extent, a brand might be limited in the number of product-markets it can extend into with a cobranding strategy

Designing cobranded extensions An important consideration in the design of a cobranded extension is the selection of the header brand versus the modifier brand The results of the studies reported herein suggest that a cobranded extension should be designed on the basis of not only offensive considerations, such as signaling the best attribute profile for the extension, but also the defensive needs of the partner brands Specifically, from a defensive perspective, the partner brand that is more vulnerable in its parent category should perhaps serve as the modifier brand rather than the header brand Furthermore, revenue-sharing agreements between the partner brands should account for the counterextension risk faced by each in its respective parent category

Limitations and Further Research

Although this research provides initial insights into the differential impact of cobranded versus solo-branded extensions on the evaluation of a counterextension, further research using different product categories and research methodologies is necessary to establish the robustness of the findings In addition, several related questions must be addressed First, even if one brand chooses cobranding as an extension strategy, other brands in its parent category may still launch solo-branded extensions Further research is needed to address how one brand's choice between solo branding and cobranding influences the extension strategies of other brands in its category and the joint effect of their choices on the evaluation of counterextensions Second, this research has focused only on the evaluation of a solo-branded counterextension Potentially, the counterextension could itself be cobranded and may be better accepted than a solo-branded counterextension The interplay between cobranded extensions is a worthwhile and useful area for further research that could provide insights into whether cobranding affects the evaluation of only solo-branded counterextensions or that of cobranded counterextensions as well

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René Algesheimer, Utpal M. Dholakia, & Andreas Herrmann

The Social Influence of Brand Community: Evidence from European Car Clubs

The authors develop and estimate a conceptual model of how different aspects of customers' relationships with the brand community influence their intentions and behaviors. The authors describe how identification with the brand community leads to positive consequences, such as greater community engagement, and negative consequences, such as normative community pressure and (ultimately) reactance. They examine the moderating effects of customers' brand knowledge and the brand community's size and test their hypotheses by estimating a structural equation model with survey data from a sample of European car club members.

Marketers have become more interested in learning about, organizing, and facilitating brand communities (e.g., McAlexander, Schouten, and Koenig 2002), which are "based on a structured set of relationships among admirers of a brand" (Muniz and O'Guinn 2001, p. 412). Many reasons underlie this interest, including the ability of brand communities to influence members' perceptions and actions, often in persistent and broad-based fashions (e.g., Muniz and Schau 2005), to rapidly disseminate information (e.g., Brown, Kozinets, and Sherry 2003), to learn consumer evaluations of new offerings, competitive actions, and so forth, and to maximize opportunities to engage and collaborate with highly loyal customers (e.g., Franke and Shah 2003). In the present-day cluttered and often hostile marketing environment, many marketers believe that the facilitation of brand communities is both cost effective and powerful.

Harley-Davidson's Harley Owners Group (HOG) is perhaps the prototypical example of a brand community cited in published studies (e.g., Fournier et al. 2001; Schouten and McAlexander 1995). This brand community, as are many others, is actively nurtured by the company. In particular, when customers buy a Harley-Davidson motorcycle, they are courted by the firm to join the local HOG chapter, attend its meetings, and participate in various events. These HOG chapters are usually managed by and meet at local dealerships, and they receive funding from Harley-Davidson.

These overtures are made effective by the ongoing sentiments and satisfaction that community members experience through frequent social interactions in HOGs. Such interactions provide not only utilitarian support in the form of riding and maintenance tips to members but also intellectual and social support through experiences of learning, social activism, and fellowship. Participation in HOGs has been found to increase members' affection for the Harley brand, making them committed, dependable, and, in many cases, even evangelical consumers (e.g., Fournier et al. 2001).

Furthermore, the HOGs example and other success stories, such as Macintosh user groups (e.g., Belk and Tumbat 2002), *Star Wars* fans (Brown et al. 2003), and Sun's Java center community (Williams and Cothrel 2000), have buttressed the positive aspects of brand communities in marketing managers' minds, leading many firms to make (or to consider making) significant investments in building and facilitating brand communities. At the same time, marketers embarking on such initiatives want to better understand how brand communities create value for their firms. A salient issue is how to measure and evaluate the success of a brand community program in terms that are comparable to other, more established marketing programs, such as image advertising or customer relationship management (Balasubramanian and Mahajan 2001). To accomplish this, it is important to understand how brand communities influence consumers and the conditions that increase this influence.

The purpose of our research is to develop and estimate a conceptual model of how different aspects of customers' relationships with the brand community influence their intentions and behaviors. We describe how the customer's relationship with the brand precedes and contributes to his or her identification with the brand community and loyalty intentions. We also describe how identification with the brand community leads to positive consequences, such as greater community engagement, and negative consequences, such as normative community pressure and (ultimately) reactance. Moreover, we consider the interplay among these three constructs and their effects on customers' intentions and behaviors. We also examine the moderating effects of customers' brand knowledge and the

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brand community's size For example, we find that the brand community's social influence is greater for knowledgeable customers than for novice customers

We test our hypotheses by estimating a structural equation model with survey data from a sample of European car club members We also develop and validate new scales to measure several community-related constructs in the model, such as identification, engagement, and normative pressure, that may be useful in conducting further survey-based brand community research

Research Setting

The brand communities we studied are car clubs in German-speaking Europe (Germany, Austria, and Switzerland) We chose cars because they are known to elicit high levels of emotion and involvement in many consumers (e g , Brown et al 2003, McAlexander and Schouten 1998), and this is conducive to brand community participation Indeed, our preliminary research revealed that clubs are associated with virtually every major automobile brand in German-speaking Europe

The clubs that we studied span various car brands and, in a majority of cases, are individual car clubs that are organized around a particular corporate brand (e g , Ford, Volkswagen) rather than a specific product family or make These clubs range from about a dozen members to hundreds of members Moreover, as do HOGs, most car clubs receive significant financial support from the respective car company and its dealers, which enables them to organize members-only events throughout the year

Car clubs are social organizations Within most clubs, members meet face-to-face on a regular basis, often at monthly meetings They also communicate extensively with one another online (e g , through e-mail lists, bulletin boards) and engage in various social activities and events (e g , boat trips, parties, barbecues, drives to distant events, such as concerts) throughout the year In this respect, car clubs differ from the "Brandfests"—concentrated (approximately) week-long, brand-centered, corporate-sponsored events that are held infrequently—that McAlexander and colleagues study (McAlexander and Schouten 1998, McAlexander, Schouten, and Koenig 2002) As in any other voluntary social organization, car club members vary in their level of interest and participation as well as in their knowledge of and attachment to the car brand

Furthermore, a majority of members join the car club after having purchased and owned their car, often for a long time This aspect of car club membership is similar to Brandfest participation, because Brandfests also require prior ownership of the brand's products for participation (McAlexander and Schouten 1998) As a result, in our model, the consumer's relationship with his or her car brand precedes and may serve as a basis for joining and participating in the car club However, we acknowledge that over time, the consumer's relationship with the car brand can be influenced by brand community participation We provide further details about our respondent sample in the "Method" section

Theoretical Framework and Hypotheses

Our conceptual framework explicates the bases and consequences of the brand community's influence on consumers The framework draws on recent marketing studies of brand communities (e g , McAlexander, Schouten, and Koenig 2002, Muniz and O'Guinn 2001), social identification (e g , Bhattacharya and Sen 2003), and group-based consumer interactions (e g , Dholakia, Bagozzi, and Pearo 2004), and it adds to these ideas by explicitly including the consumer's relationship with the brand as an antecedent, the negative aspects of community influence, and the conditions that accentuate community influence

As we show in Figure 1, the model depicts brand community identification as the strength of the consumer's relationship with the community Identification is influenced by the consumer's relationship with the brand, and it leads to engagement and perceptions of normative pressure and reactance These consequences influence various community- and brand-related behaviors of managerial relevance Next, we develop the model in detail

Identification with the Brand Community

We begin by considering the strength of the consumer's relationship with the brand community, which we characterize through "brand community identification," whereby the person construes himself or herself to be a member—that is, as "belonging" to the brand community In contrast to other identities, which may render a person unique and separate, this is a shared or collective identity (Bhattacharya, Rao, and Glynn 1995, Tajfel and Turner 1985) Several studies suggest that social identity, defined in terms of a valued group, such as a brand community, involves both cognitive and affective components (e g , Bergami and Bagozzi 2000, Bhattacharya and Sen 2003)

Regarding the cognitive component, identification with the brand community involves categorization processes, whereby the consumer formulates and maintains a self-awareness of his or her membership within the community (e g , "I see myself as part of the community"), emphasizing the perceived similarities with other community members and dissimilarities with nonmembers This captures the consciousness-of-kind aspect of brand communities (Muniz and O'Guinn 2001) Regarding the affective component, identification implies a sense of emotional involvement with the group, which social psychologists have characterized as an "affective commitment" to the group (Ellemers, Kortekaas, and Ouwerkerk 1999) and which brand community research has characterized as "kinship between members" (McAlexander, Schouten, and Koenig 2002) Therefore, identification means that the consumer agrees (or strives to agree) with the community's norms, traditions, rituals, and objectives (Bhattacharya, Rao, and Glynn 1995) and promotes its well-being (Wiswede 1998)

Consequences of Brand Community Identification

Brand community identification is posited to have both positive and negative consequences for consumers Recent studies document many of its positive consequences For

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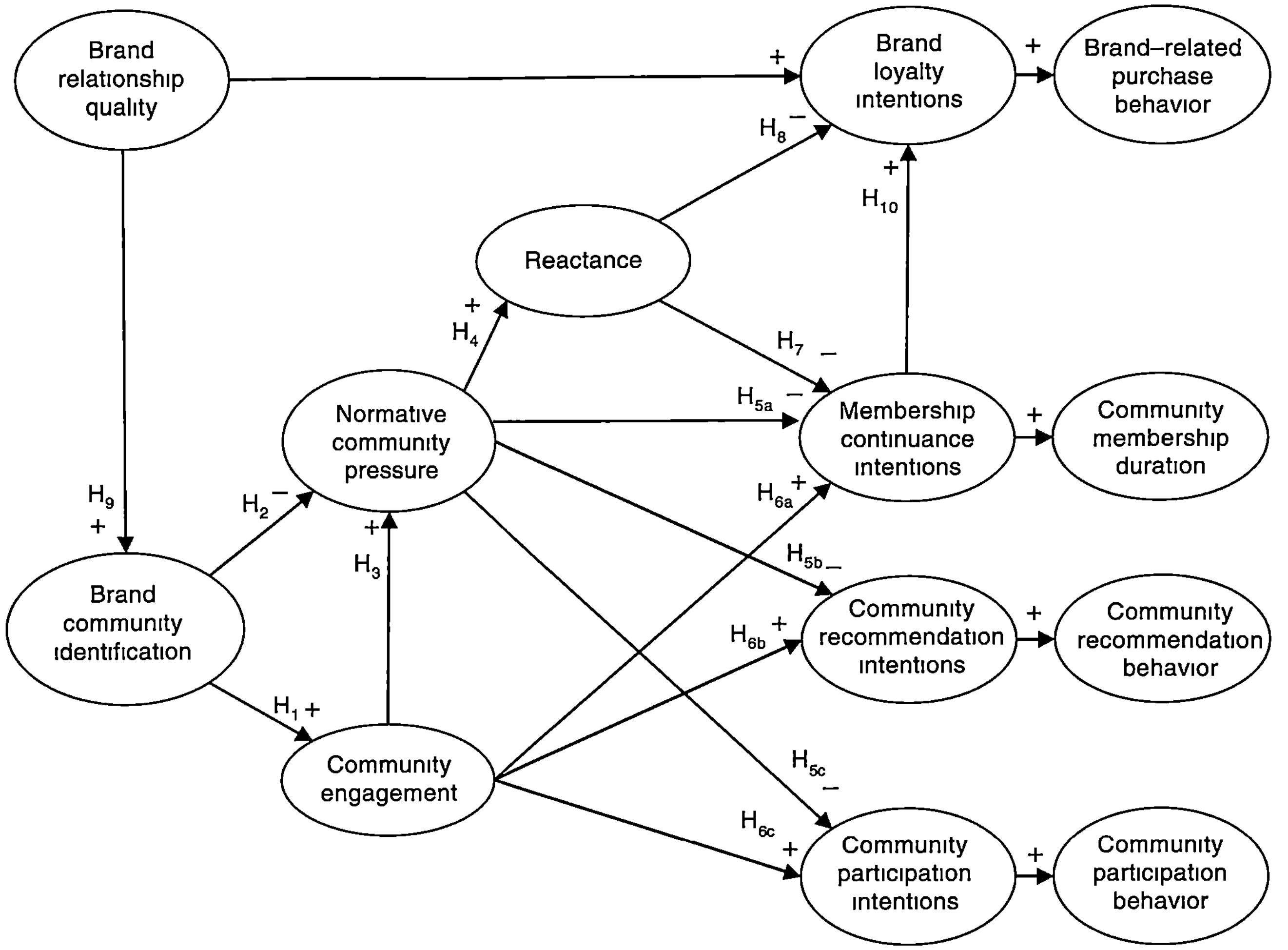
FIGURE 1
Hypothesized Model


Brand relationship quality
Brand loyalty intentions
Brand–related purchase behavior
Reactance
Normative community pressure
Membership continuance intentions
Community membership duration
Brand community identification
Community recommendation intentions
Community recommendation behavior
Community engagement
Community participation intentions
Community participation behavior
+
+
H8 –
+ H10
+ H4
H7 –
H5a –
+
H9 +
H2 –
+ H3
H6a +
H5b –
+
H6b +
H1 +
H5c –
H6c +
+

example, McAlexander, Schouten, and Koenig (2002) find that participation in a Jeep Brandfest event increases consumers' attachment to their vehicles and to the Jeep brand significantly. Muniz and O'Guinn (2001) report that Macintosh computer community members help other members by sharing information about ways to enhance their computers' functioning. Muniz and Schau (2005) find that even six years after Apple Computer Inc. had discontinued the Newton product, its brand community members still continued to support one another and advocate the product's use to outsiders.

In our model, "community engagement" refers to the positive influences of identifying with the brand community, which are defined as the consumer's intrinsic motivation to interact and cooperate with community members. Community engagement suggests that members are interested in helping other members, participating in joint activities, and otherwise acting volitionally in ways that the community endorses and that enhance its value for themselves and others.

Community engagement results from the overlaps that members perceive between their own unique self-identity and their group-based identity, group participation is viewed as congruent to and as an expression of personal values (Bhattacharya and Sen 2003). It is also consistent with the notion of "citizenship" as formulated in the organizational behavior and marketing literature. Therefore, we hypothesize the following:

H_1: Stronger brand community identification leads to greater community engagement.

Furthermore, belonging to any community entails restrictions to act in certain ways. In our framework, "normative community pressure" defines the consumer's perceptions of the brand community's extrinsic demands on a person to interact and cooperate within the community. These demands are attended by sometimes overt but often implicit coercion to conform to the community's norms, rituals, and objectives (e.g., Wellman et al. 1996). Social psychologists have noted that the need for consensual validation by others within the community is perhaps the primary reason normative pressure is effective in regulating members' actions (McMillan and Chavis 1986).

Normative pressure may influence members' actions about recruitment, imitation, and ongoing interactions as well as the representation of the brand community to out-

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siders For example, a Saab car owner may believe that he or she needs to wave to other Saab drivers as a token of fellowship in the Saab brand community (Muniz and O'Guinn 2001) Similarly, a HOG member may believe that he or she is obligated to disparage other, particularly Japanese, motorcycle brands and mock their riders (Schouten and McAlexander 1995)

The influence of normative pressure from group members is an important element of attitude-theoretic formulations of behavior as well (e g , Ajzen 1991) This research suggests that the group's influence on the individual, which is activated through subjective norms, has two distinct and not necessarily coincident aspects (1) publicly visible compliance with the group's norms and (2) the private acceptance of those norms (e g , Cialdini and Goldstein 2004) When publicly visible compliance is not accompanied by complete private acceptance, the person experiences normative pressure, which influences behavior significantly (Eagly and Chaiken 1993)

We hypothesize that greater identification with the brand community reduces the consumer's perceptions of normative pressure by increasing the overlap between the community's and the individual's norms, values, and goals With greater identification, members tend to internalize these norms and view their actions as stemming from this overlap rather than from expectations or requirements of the brand community Thus

H_2 Stronger brand community identification leads to reduced normative community pressure

In addition, community engagement and normative pressure, two consequences of community identification, are not mutually exclusive for the following reason Higher levels of engagement, though stemming from positive self-endorsed motives, are likely to be accompanied by greater degrees of conspicuous participation within the community (e g , Langerak et al 2003) Highly engaged members may take on leadership roles, become active and vocal recruiters and/or defenders of the community, be more adversarial toward competing brand communities, and so on In turn, such actions are likely to increase not only the expectations of other members for behavior but also the member's own perceptions of community expectations This should raise normative pressure Thus, we hypothesize the following

H_3 Greater community engagement leads to greater normative community pressure

Thus, the consumer experiences constraints and perceives less freedom to act with volition Psychologists have called such a motivational state in which a person attempts to regain the lost freedom "reactance" (e g , Brehm 1966) For example, during our preliminary qualitative research, a Fiat car club member told us the following

> On the one hand, the club is like a second family to me, finding friends there that trust and support me and with whom I have lots of things in common On the other hand, I often feel that it is expected of me to participate in all club events, to take on many responsibilities and organizational tasks Seeing everything through the "Fiat" lens makes me feel sick so that I sometimes feel like I want to leave the club in order to realize more personal freedom Perhaps I would then be able to drive an old Austin Healey

To the extent that belonging to the brand community and participating in it is perceived as entailing compliance and an obligation to think and act in certain ways, the consumer may experience reactance This is consistent with Brehm's (1966) theory that reactance increases as perceptions of constraints increase Therefore, we hypothesize the following

H_4 Higher levels of normative community pressure lead to stronger perceptions of reactance

We measured reactance using an item from Dowd, Milne, and Wise's (1991) scale

Behavioral Intentions Regarding the Brand Community

Next, we consider how normative pressure and community engagement influence three behavioral intentions of members The first is "membership continuance intentions," which is the member's intentions to maintain membership and ties to the brand community in the future Such an intention implies willingness to stay committed to the community and to meet any conditions, such as fees, that are required for membership The second is the person's intentions to recommend the brand community to nonmembers, and the third pertains to the person's level of participation From a marketing standpoint, these intentions are crucial to perpetuate the brand community, to attain goals, and to create an effective marketing program For example, management writers have noted that higher participation levels lead to higher levels of involvement with marketer-sponsored communities, "turning visitors into members, members into contributors, and contributors into evangelists" (Langerak et al 2003, p 10) These three behavioral intentions likely help marketing managers frame and communicate the brand community's influence on their customers in familiar terms

Consider the impact of normative community pressure on the behavioral intentions The greater the pressure on members to conform to the brand community's norms and objectives, the more burdensome is the association with and participation in the brand community As a result, consumers are less inclined to engage in community-related activities, which leads to the following hypothesis

H_5 Stronger normative community pressure leads to weaker (a) membership continuance intentions, (b) community recommendation intentions, and (c) community participation intentions

In contrast to normative pressure (experienced as a punishment by participants), community engagement, which represents the positive and self-instigated aspects of the brand community's influence, is likely to be experienced positively Members should be eager to repeat behaviors that lead to such positive rewards, and they should have higher levels of behavioral intentions as a result Thus

H_6 Stronger community engagement leads to stronger (a) membership continuance intentions, (b) community recommendation intentions, and (c) community participation intentions

Finally, we consider the influence of reactance on behavioral intentions For example, the aforementioned Saab driver and Harley-Davidson rider may behave as their respective norms dictate— waving to other Saab drivers and disparaging riders of other motorcycle brands—but these actions may be accompanied with a conscious awareness that they are dictated by the group and that it is not proper to behave in such a way The primary effect of such reactance is that people who experience it try to reassert their freedom (Brehm 1966), and they are motivated "to move in the direction opposite from the influence effort" (Clee and Wicklund 1980, p 390) As the previously quoted car club member suggests, one way to reassert freedom is to discontinue membership in the brand community Thus

> H_7 Higher levels of reactance lead to weaker membership continuance intentions

Reactance is also likely to have a negative effect on the person's future use of the brand Because brand communities, by definition, advocate the brand's use and often strongly dissuade members from trying or using competing brands, another upshot of reactance should be to motivate the consumer to disobey this directive to regain his or her lost freedom Thus, we hypothesize the following

> H_8 Higher levels of reactance lead to weaker brand loyalty intentions

Impact of Brand Relationship on Brand Community–Related Constructs

Brand loyalty offers a useful way to examine the interplay between the consumer's relationship with the brand and the brand community Muniz and O'Guinn (2001) emphasize these two relationships implicitly by positioning their conceptualization of brand community as involving a triadic consumer–brand–consumer relationship McAlexander, Schouten, and Koenig (2002) go a step further and show that the consumer's integration within a brand community is a function of his or her perceived relationships not only with the brand and other community members but also with the product and the company

A key construct in our conceptual framework is the consumer's relationship with the brand, which we characterize as "brand relationship quality" (see Figure 1) Consistent with existing consumer-centric views of brand relationships (e g , Fournier 1998), we define brand relationship quality as the degree to which the consumer views the brand as a satisfactory partner in an ongoing relationship In our model, it is the consumer's overall assessment of the strength of his or her relationship with the brand (e g , DeWulf, Odekerken-Schroeder, and Iacobucci 2001) This meaning is also consistent with research showing that consumers frequently view brands in human terms, often assigning animate characteristics to them (e g , Aaker 1997), and they often take the perspective of a brand (as if it were a person) to articulate their own perceptions of their relationships with it (Fournier 1998) Such a view is also informed by recent brand community research (McAlexander, Schouten, and Koenig 2002), which indicates that the consumer's ties to the brand can encompass the entire firm (e g , Ford and its specific products that the consumer owns, such as a Ford Explorer)

In our framework, brand relationship quality is based on the extent to which the consumer identifies with his or her car brand or views his or her self-image as close to and overlapping with the car's image (Hogg and Abrams 1988) As a result, our definition seems more consistent with McAlexander, Schouten, and Koenig's (2002) view of consumer ties to specific products In addition, and in line with existing research (e g , Fournier 1994), we include cognitive (a self-awareness of the closeness of the relationship) and evaluative (the positive evaluation of self-worth that stems from a relationship with the brand) aspects of the consumer's perceptions in the operationalization of brand relationship quality It is consistent with the conceptualization of consumer-brand identification (Bhattacharya and Sen 2003), we measure this using items from Fournier's (1994) and Aaker's (1997) studies

From our perspective, the consumer's relationship with the brand precedes and contributes to his or her relationship with the brand community Many consumers first discover and value the brand for the functional and symbolic benefits it provides A harmonious relationship with the brand can lead consumers to seek out and interact with like-minded consumers who share their enthusiasm Moreover, an existing identification with the brand is likely to facilitate integration and identification with the brand community For example, even when traditions, such as greeting other brand users, appear peculiar to the consumer, a strong relationship with the brand may help the person accept them and intrinsically endorse these practices Thus

> H_9 Higher levels of brand relationship quality lead to a stronger brand community identification

Membership and participation in the brand community should also have an impact on the consumer's brand-related behaviors In particular, we expect that members' intentions to remain engaged with the brand community have a positive impact on their loyalty toward the brand because a key marker of community membership is ongoing purchase and use of the brand Thus

> H_{10} Higher levels of membership continuance intentions lead to stronger brand loyalty intentions

Finally, consistent with attitude-theoretic formulations of goal-directed behavior (e g , Ajzen 1991, Eagly and Chaiken 1993), we also expect that (1) higher levels of brand relationship quality lead to greater brand loyalty intentions and (2) behavioral intentions lead to corresponding behaviors These paths are not stated formally as hypotheses, because they have been well documented in the literature, but they are included in our model for the sake of completeness (see Figure 1)

Moderating Effects of Consumers' Brand Knowledge and Brand Community Size

From a managerial standpoint, it is important to consider what consumer and community characteristics accentuate the brand community's influence on its members We consider one consumer characteristic, the person's brand knowledge, and one community characteristic, its size (as defined by membership count). Both these characteristics are not only managerially significant in the sense of being observable but also actionable in the sense that they provide specific guidance to managers on actions they can take (e.g., organize communities of a certain size).

First, consider the consumer's brand knowledge. Broadly speaking, we predict that the brand community exerts more influence on its knowledgeable members because brand knowledge captures both the aspects of interest in the brand and the consumer's previous experience level with it, suggesting that knowledgeable consumers are more engaged with the brand and the community. Such consumers are also more likely to take on leadership roles in brand community activities (Schouten and McAlexander 1995). Conversely, novice consumers are more likely to be the brand community's newer members and may still be in the process of learning about the brand and the community as well as forming relationships within it. Furthermore, the more participants know about the brand, the more confident they are when expressing their (positive or negative) opinions within the community, which leads to greater opportunities both for engagement and for experiencing normative pressure. Thus, we hypothesize that the average levels of key constructs in our conceptual model (i.e., community identification, engagement, normative pressure, and brand relationship quality) are significantly higher, and the strengths of the paths between them are much greater for knowledgeable consumers than for novice ones. We articulate these predictions subsequently in H_{11}–H_{15}.

Second, consider the brand community's size. In larger brand communities (defined in our empirical study as those that have 50 active members or more), members are more likely to identify with the community as a whole rather than with specific people in it (Dholakia, Bagozzi, and Pearo 2004). Sociological research has also shown that membership in larger communities often serves functional purposes—for example, to find an expert who is capable of solving a particular problem with a car (e.g., Wellman et al. 1996). In contrast, people join smaller communities more often for friendship and socialization motives. Therefore, we expect that members are less connected to larger brand communities because of the relatively tenuous and functional relationships therein.

In smaller communities (those with fewer than 50 members), "everybody knows everybody else," which results in stronger and multifaceted interpersonal relationships between consumers and a greater interest in engaging in social activities (Dholakia, Bagozzi, and Pearo 2004). Thus, members of small communities are likely to be more connected to the brand community, which results in significantly higher levels of community identification, engagement, normative pressure, and brand relationship quality perceptions.

Furthermore, recent research on virtual communities (those not organized around particular brands) also suggests that members of larger communities participate for more specific, well-defined reasons that are closely related to the community's primary purpose (Dholakia, Bagozzi, and Pearo 2004). For example, in a chatroom devoted to the online game Everquest, most of the conversation centers on aspects of playing the game successfully. In contrast, members of smaller communities participate to accomplish broader, more abstract goals, such as catching up with friends or having a good time. In certain cases, it is also possible that small communities are small simply because the topic is of interest to few people, which results in a greater variance in engagement in the brand. Such possibilities imply that in larger communities, brand relationship quality is likely to drive community identification, identification is likely to influence engagement and normative pressure, and, in turn, these are likely to influence behavioral intentions to a greater extent than in smaller brand communities. In general, we expect that though the levels of these key constructs in the model are lower, the strengths of the paths between constructs are greater for members of large brand communities than for members of small brand communities.

The following five hypotheses summarize this discussion regarding the moderating roles of the consumer's brand knowledge and the brand community's size in our proposed conceptual model:

H_{11}: Community identification, community engagement, normative community pressure, and brand relationship quality are greater (a) for knowledgeable than for novice consumers and (b) for members of small brand communities than for members of large brand communities.

H_{12}: The positive impact of brand relationship quality on community identification is stronger (a) for knowledgeable consumers than for novice consumers and (b) for members of large brand communities than for members of small brand communities.

H_{13}: The impacts of community identification on community engagement (positive) and on normative community pressure (negative) are stronger (a) for knowledgeable consumers than for novice consumers and (b) for members of large brand communities than for members of small brand communities.

H_{14}: The negative impact of normative community pressure on community-oriented behavioral intentions is stronger (a) for knowledgeable consumers than for novice consumers and (b) for members of large brand communities than for members of small brand communities.

H_{15}: The negative impact of reactance on membership continuance intentions and brand loyalty intentions is stronger (a) for knowledgeable consumers than for novice consumers and (b) for members of large brand communities than for members of small brand communities.

Method

Development of Measures

We derived measures for several constructs in our framework from existing scales or studies in the literature (as we described previously), and we adapted them to suit the context of our study. For community identification, engagement, and normative pressure, we developed new scales. Briefly, we used the following procedure that Churchill (1979) advocates. We conducted in-depth interviews with four car club presidents in Germany and held a focus group with 13 car club members in Switzerland to better understand how these experts perceived and described the constructs We generated an initial set of items from this exploratory research

Next, to enhance the constructs' face validity, we had 13 other experts evaluate this initial item set We provided construct definitions and asked the experts to evaluate each item with respect to wording, fit with construct, completeness, and uniqueness We rephrased improperly worded items and deleted those that did not fit the construct definition In the final step, 46 graduate marketing students who belonged to one or more brand communities participated in a quantitative pretest of the modified items They responded to the items, described their understanding of each one, provided an explanation for their responses, and indicated any problems they encountered while responding We made several minor changes in wording based on this feedback and finalized the items to be used for the main study (provided in the Appendix) We note that some of our items for community identification are similar in content to Mael and Ashforth's (1992) identification scale

Participant Recruitment

In recruiting participants for our study, we identified and targeted all German-speaking car clubs located in Germany and the German-speaking regions of Switzerland and Austria, there were a total of 282 such clubs [1] For each car club, we contacted its president or organizer and requested him or her either to provide us with a list of the club's members or to forward our survey to the club's membership We reached approximately 2440 existing car club members through this procedure [2]

We completed the study in two waves We invited the car club members to participate in a Web-based survey in exchange for entering them into a raffle for valuable coupons We made the first wave of the survey available online for four weeks in early 2003, we introduced it to participants as an "opinion survey regarding car clubs in Germany, Switzerland, and Austria" Participants completed the survey in approximately 15 minutes After approximately ten weeks, we contacted all participants again by e-mail and asked them to respond to five additional questions pertaining to their brand- and brand community–related behaviors during the intervening period These responses constitute the terminal dependent variables in our structural model Of the participants who completed both waves of the survey, we randomly chose five to receive automotive services coupons worth €100 each (approximately $125 at the time we collected the data)

Sample Characteristics and Measures

Of the 2440 car club members that we contacted, a total of 824 completed the first wave of the survey (a response rate of 33 8%), and a total of 529 completed both waves, resulting in a usable response rate of 21 7% The analysis that follows is based on these 529 respondents, who belong to a total of 101 different car clubs

The sample's demographics are as follows 86 9% were male and 13 1% were female Respondents ranged in age from 16 to 59 years, with a mean age of 32 years (median = 35, standard deviation = 71) By nationality, 87 4% were German, 5 3% were Swiss, and 5 8% were Austrian, 1 3% did not disclose their nationality By duration of membership, 108 (or 20 6%) had belonged to their respective car club for less than a year, 219 (or 41 7%) had belonged between one and three years, and 198 (or 37 7%) had belonged for more than three years The most represented car brands in the sample were Ford (n = 137), Volkswagen (n = 88), Mercedes (n = 53), Opel (n = 52), and BMW (n = 41) Other brands that were represented by fewer respondents included Porsche, Smart, Audi, Mini, Volvo, Renault, and Citroen

Classification of Respondents

Brand knowledge We used the following multivariate normal mixture model to classify participants on the basis of their brand knowledge Let y_1, y_2, , y_n denote an observed three-dimensional sample of size n The three dimensions correspond to the three measures of brand knowledge from the survey (see the Appendix) Therefore, each data point is assumed to be a realization of the random three-dimensional vector Y with the g-segment mixture probability density function $f(y, \Psi) = \Sigma^g_{i=1}\pi_i\phi_i(y, \mu_i, \Sigma_i)$, where the mixing proportions π_i are nonnegative, $\Sigma^g_{i=1}\pi_i = 1$, and $\Psi = (\pi_1, \ \ , \pi_{g-1}, \mu_i, \Sigma_i)$ Furthermore, the multivariate normal probability density function has a mean (vector) μ_i and covariance matrix Σ_i

We estimated the number of segments (g) and the mixing proportions π_i with the EMMIX software program (McLachlan et al 1999), which uses the E-M algorithm (Dempster, Laird, and Rubin 1977) This analysis revealed two segments of participants, which we labeled as "novice" and "knowledgeable" The novice segment constituted 21% of the sample (n = 111) and had a mean score of 4 27 on the three brand knowledge measures (on ten-point scales) The knowledgeable segment constituted 79% of the sample (n = 418) and had a mean score of 8 45 on the three measures (which was significantly higher than the novice group, $p <$ 001)

Brand community size We classified respondents as belonging to either small or large car clubs We defined small car clubs as those with fewer than 50 members and large clubs as those with 50 or more members On the basis of responses to our survey question about car club size (see the Appendix), we classified 288 participants (54 3%) as belonging to small car clubs and 236 (44 5%) as belonging to larger car clubs, 5 members did not indicate their car club's size

Preliminary Analysis

Our full-sample structural equation model included all survey respondents, and we used it to test H_{1-10}, we used the knowledgeable/novice and small/large subsamples to test the moderation hypotheses ($H_{11—15}$) We ran all the models that we describe subsequently using the LISREL 8 54 program (Joreskog and Sorbom 1999) We assessed the goodness-of-fit of the models with chi-square tests, the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), the nonnormed fit index (NNFI), and the comparative fit index (CFI) Discussions of these indexes can be found in the work of Bentler (1990), Marsh and Hocevar (1985), and Marsh, Balla, and Hau (1996) Satisfactory model fits are indicated by nonsignificant chi-square tests, SRMR and RMSEA values ≤ 08, and NNFI and CFI values ≥ 90

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[1] We used two Web sites (in March 2003) to identify these car clubs http //auto degui de and http //www allesklar de/s php?jump=100-30609-31175

[2] This calculation is based on the total number of members that we individually contacted in addition to counts provided by car club organizers who forwarded our request to their club's members

When they were available, we used two indicators to operationalize each latent construct Using the partial disaggregation model (Bagozzi and Edwards 1998), we combined latent constructs for which more than two items were available (i e , community identification, community engagement, membership continuance intentions, brand relationship quality, and brand loyalty intentions) to produce two indicators Compared with models in which each item is a separate indicator, such an approach results in models with fewer parameters to estimate and reasonable ratios of cases to parameters, and it smoothes out measurement error to a certain extent We performed all analyses using covariance matrices (Cudeck 1989)

Results

Measurement Model Evaluation

Internal consistency We used two measures to evaluate the internal consistency of constructs The composite reliability (ρ_ε) is a measure analogous to coefficient α (Fornell and Larcker 1981, Eq 10), whereas the average variance extracted ($\rho_{VC(\xi)}$) estimates the amount of variance captured by a construct's measure relative to random measurement error (Fornell and Larcker 1981, Eq 11) Estimates of ρ_ε greater than 60 and $\rho_{VC(\xi)}$ greater than 50 are usually considered to support internal consistency (Bagozzi and Yi 1988) As Table 1 shows, all values are significantly greater than these stipulated criteria and therefore are indicative of good internal consistency

Discriminant validity We evaluated discriminant validity of the model constructs using two different approaches We built a confirmatory factor analysis model with 12 latent constructs and a total of 20 measures The results show that the model fit the data well The goodness-of-fit statistics for the model are as follows $\chi^2(108) = 417\ 49$, $p \approx 00$, RMSEA = 07, SRMR = 03, NNFI = 95, and CFI = 97 The ϕ matrix (correlations between constructs, corrected for attenuation) appears in Table 2 As a first test of discriminant validity, we checked whether the correlations among the latent constructs were significantly less than one Because none of the confidence intervals of the ϕ values (± two standard errors) included the value of one (Bagozzi and Yi 1988), this test provides evidence of discriminant validity[3]

In addition, for each pair of factors, we compared the chi-square value for a measurement model and constrained the correlation to equal one to a baseline model without this constraint We performed a chi-square difference test for each pair of factors (a total of 66 tests in all), and every case resulted in a significant difference, again suggesting that all the measures of constructs in the measurement model achieve discriminant validity

Structural Model Estimation

With respect to the fit statistics for the full model ($\chi^2[147] = 747\ 7$, $p \approx 00$, RMSEA = 08, NNFI = 93, and CFI = 94), the chi-square is significant ($p < 05$), which is usually the case for large sample sizes All the other statistics are within the acceptable ranges, which indicates a good model fit We found that the impact of brand community identification on community engagement is strong and positive (β = 99,

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[3] Note that because the ϕ values in Table 2 have been corrected for attenuation, the corresponding product-moment correlations between constructs are actually lower than these values

TABLE 1
Means, Standard Deviations, Reliabilities, and Internal Consistency Statistics for Construct Measures

Construct	Number of Measures	Mean	Standard Deviation	ρ_ε	$\rho_{VC(\xi)}$
Community identification	5	8 13	1 85	92	70
Community engagement	4	7 49	2 02	88	64
Normative community pressure	2	3 47	2 31	81	68
Reactance	1	4 46	2 85	—	—
Membership continuance intentions	3	8 05	1 97	84	64
Community recommendation intentions	2	7 12	2 39	78	64
Community participation intentions	1	8 53	1 90	—	—
Community membership behavior	1	2 35	85	—	—
Community recommendation behavior	1	2 39	91	—	—
Community participation behavior	1	2 30	70	—	—
Brand relationship quality	3	6 54	2 54	81	66
Brand recommendation intentions	3	7 36	2 35	90	75
Brand-related purchase behavior	1	1 28	54	—	—
Brand knowledge	3	7 57	2 08	89	75

TABLE 2
ϕ Matrix of Latent Constructs for Full Sample

	CI	CP	CE	RE	MCI	CRI	CPI	BLI	BP	CRB	CPB	BRQ
CI	1											
CP	03	1										
CE	77*	23*	1									
RE	09*	33*	05	1								
MCI	81*	02*	72*	– 15*	1							
CRI	62*	02	64*	– 09*	75*	1						
CPI	33*	02	35*	– 15*	34*	68*	1					
BLI	35*	– 26*	28*	– 11*	46*	41*	17*	1				
BP	19*	06	12*	06	32*	32*	14*	24*	1			
CRB	42*	03	28	14*	34*	25*	40*	18*	20*	1		
CPB	40*	05	31*	02	33*	20*	42*	09	37*	37*	1	
BRQ	28*	07	28*	20*	36*	34*	33*	59*	26*	32*	18*	1

*Significant at $\alpha =$ 05, all correlations are significantly less than 1 00

Notes CI = community identification, CP = normative community pressure, CE = community engagement, RE = reactance, MCI = membership continuance intentions, CRI = community recommendation intentions, CPI = community participation intentions, BLI = brand loyalty intentions, BP = brand-related purchase behavior, CRB = community recommendation behavior, CPB = community participation behavior, and BRQ = brand relationship quality

standard error [s e] = 06), in support of H_1, and its impact on normative community pressure is significant and negative (β = –1 99, s e = 32), in support of H_2 Figure 2 summarizes these and other results

Furthermore, as we predicted, community engagement influences normative pressure positively (β = 2 06, s e = 31), in support of H_3 Antecedents explain 81% of the variance in community engagement and 31% of the variance in normative pressure We found that the impact of normative pressure on reactance is positive and significant (β = 38, s e = 05), as we expected In addition, H_4 receives support, and 34% of the variance in reactance is explained

The impact of community pressure on a member's behavioral intentions is addressed in H_5 As we expected, community pressure has significant, negative effects on both recommendation (β = – 13, s e = 03) and participation (β = – 14, s e = 02) intentions, but its effect on membership continuance intentions is not significant Thus, H_{5b} and H_{5c} are supported, but H_{5a} is not For H_6, we found support for all three (i e , H_{6a-c}) because the effects of community engagement on all three behavioral intentions—membership continuance (β = 1 12, s e = 07), recommendation (β = 91, s e = 07), and participation (β = 87, s e = 06)—are significant Moreover, reactance has a negative impact on membership continuance intentions (β = – 26, s e = 08), in support of H_7 These results suggest that the negative effects of normative community pressure on membership continuance intentions are fully mediated by reactance The percentages of variance in membership continuance intentions, community recommendation intentions, and community participation intentions, as explained by their respective antecedents, were 76%, 62%, and 86%, respectively

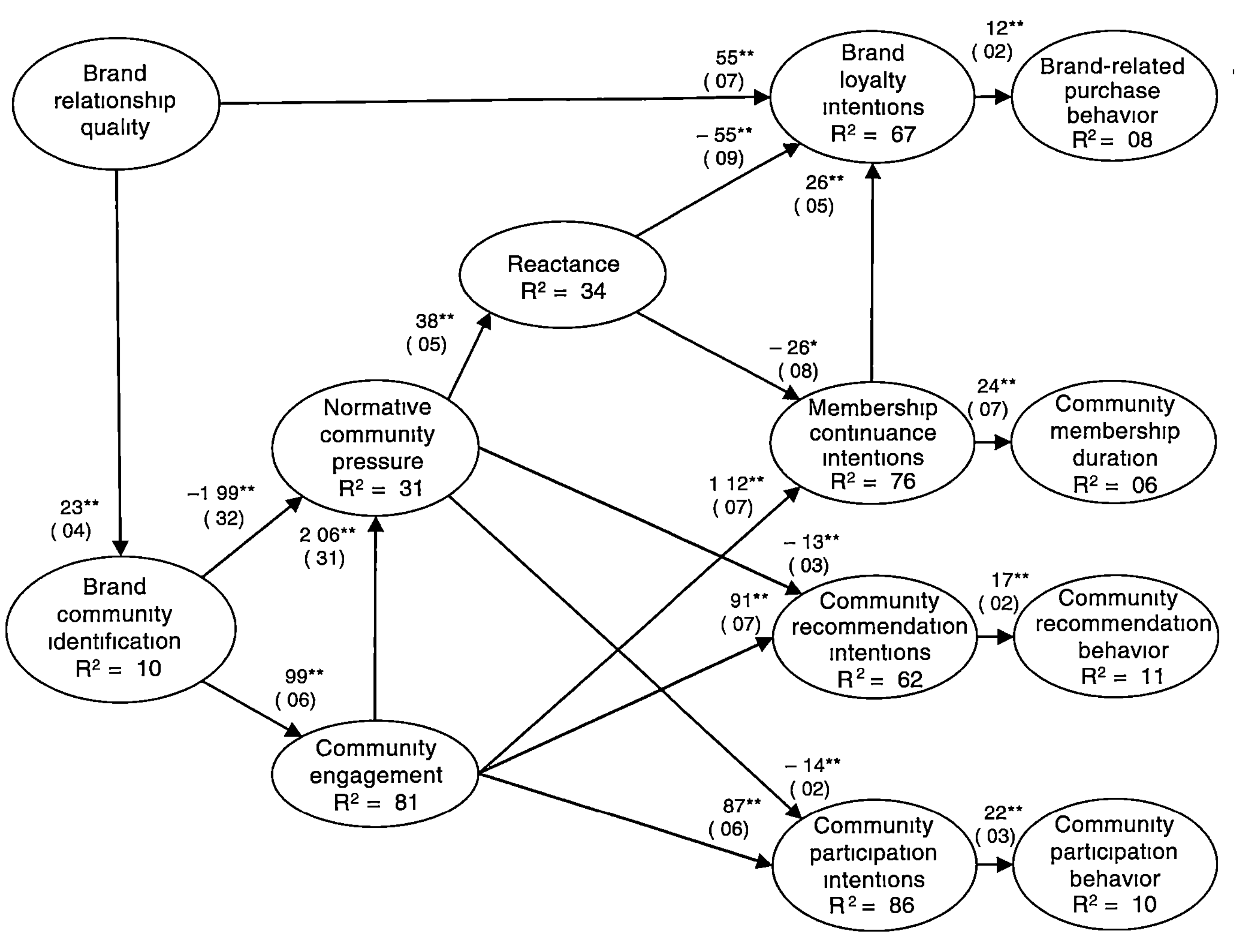
The remaining three main effect hypotheses address the interplay between brand- and brand community–related constructs In H_8, we predicted a negative impact of reactance on brand loyalty intentions, the results support this prediction (β = – 55, s e = 09) With respect to H_9, we found that brand relationship quality influences brand community identification significantly (γ = 23, s e = 04), in support of H_9 Brand relationship quality explains 10% of the variance in community identification Finally, membership continuance intentions influence brand loyalty intentions significantly (β = 26, s e = 05), in support of H_{10} The antecedents of brand loyalty intentions explain 67% of the variance This path is consistent with McAlexander, Schouten, and Koenig's (2002) finding that integration with the brand community can have a positive impact on the consumer's perceptions of the brand Furthermore, we also found support for the other expected relationships, such as a positive impact of brand relationship quality on brand loyalty intentions (for details, see Figure 2)

Comparison with a Rival Model

One important criterion of a model's success is its performance compared with that of rival models (Bagozzi and Yi 1988) Our proposed model is based on an elaborate theory that hypothesizes a specific nomological network of constructs For example, our model allows no direct paths from antecedents, such as brand relationship quality and community identification, to community-related behavioral intentions, and therefore it assumes that engagement and normative pressure mediate all the effects A nonparsimonious rival model would hypothesize direct paths from these antecedent constructs to reactance and the four behavioral intentions constructs (see Figure 3) Such a model imposes relatively little nomological structure on the constructs

We compared our hypothesized model with the rival model using the following criteria overall fit, percentage of the model's statistically significant parameters, theoretical interpretation of the paths, and explained variance of the endogenous constructs The overall fit for the rival model was about equal to that of our proposed model ($\chi^2[94]$ = 564 53, $p \approx$ 00, RMSEA = 09, NNFI = 93, and CFI = 95), but it was accompanied by reduced parsimony In our proposed model, 94 7% (or 18 of 19) of the paths were significant, whereas only 75% (15 of 20) of the paths were significant in the rival model Even more problematic, many of

FIGURE 2
Estimated Model


Brand relationship quality
Brand loyalty intentions R² = 67
Brand-related purchase behavior R² = 08
Reactance R² = 34
Normative community pressure R² = 31
Membership continuance intentions R² = 76
Community membership duration R² = 06
Brand community identification R² = 10
Community recommendation intentions R² = 62
Community recommendation behavior R² = 11
Community engagement R² = 81
Community participation intentions R² = 86
Community participation behavior R² = 10
55** (07)
12** (02)
– 55** (09)
26** (05)
38** (05)
– 26* (08)
24** (07)
23** (04)
–1 99** (32)
2 06** (31)
1 12** (07)
– 13** (03)
17** (02)
91** (07)
99** (06)
– 14** (02)
22** (03)
87** (06)

*p < 01
**p < 001
Notes Unstandardized coefficients and standard errors are in parentheses, insignificant paths are omitted for ease of exposition

the paths in the rival model did not make theoretical sense For example, the path from community identification to membership continuance intentions (γ = – 69, s e = 24) and to recommendation intentions (γ = – 65, s e = 22) were both significant and negative[4] Finally, except for participation intentions (R^2_{rival} = 91 versus $R^2_{proposed}$ = 86), the explained variances for all other endogenous constructs were much lower in the rival model (brand loyalty intentions R^2_{rival} = 49 versus $R^2_{proposed}$ = 67, membership continuance intentions R^2_{rival} = 75 versus $R^2_{proposed}$ = 76, recommendation intentions R^2_{rival} = 52 versus $R^2_{proposed}$ = 62, and reactance R^2_{rival} = 27 versus $R^2_{proposed}$ = 34) On the basis of these findings, we acknowledge that this comparison provided added confidence to the nomological network in our conceptual model

Moderating Influences of Brand Knowledge and Brand Community Size

We conducted multiple sample analyses (Joreskog and Sorbom 1999) for the knowledgeable/novice and small/large brand community subsamples to test our hypotheses regarding the role of moderating variables In H_{11}, we posited that the community identification, engagement, pressure, and brand relationship quality would be greater for knowledgeable and small community subsamples than for novice and large community subsamples To test this hypothesis, we conducted a structured means analysis in LISREL, using the following model of means structures (Joreskog and Sorbom 1999) $x_{(g)} = \tau_x + \Pi_x\xi_{(g)} + \delta_{(g)}$, where g refers to the respective subsample, $x_{(g)}$ is a vector of input variables, τ_x is a vector of constant intercept terms, Π_x is a matrix of coefficients of the regression of x on ξ, ξ is a vector of latent

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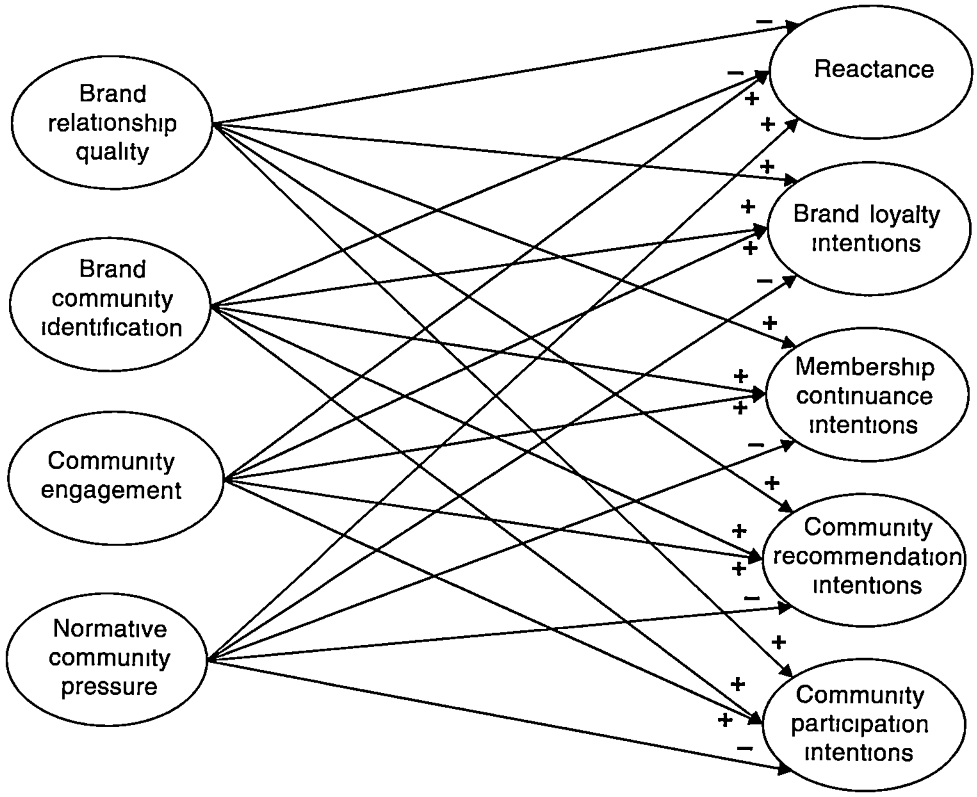
[4] Detailed results for the rival model are available on request We also tested two other rival models that were more parsimonious and reflected current conventional wisdom about the value of brand communities Our hypothesized model out-performed both models The detailed comparisons for these two additional models are also available on request

FIGURE 3
Rival Model


Brand relationship quality
Brand community identification
Community engagement
Normative community pressure
Reactance
Brand loyalty intentions
Membership continuance intentions
Community recommendation intentions
Community participation intentions
–
+

independent variables, δ is a vector of measurement errors in x, and the means of the $\xi_{(g)}$ equal $\kappa_{(g)}$

For the two moderating variables, we set the $\kappa_{\text{Knowledgeable}}$ and κ_{Small} equal to zero to define the origin and units of measurement of the ξ factors, then, we computed κ_{Novice} and κ_{Large} and determined whether the differences in the factor means between the groups were significantly different from each other Table 3 provides the results

The top panel of Table 3 shows that when novice consumers are compared with knowledgeable consumers, the factor means for all four constructs are significantly lower for novice consumers, as we hypothesized In the lower panel of Table 3, we find mixed results Furthermore, as we predicted, when large communities are compared with small communities, factor means of community identification and normative pressure are significantly lower for large communities However, factor means of community engagement and brand relationship quality are not significantly different for the two subsamples On the whole, these results support H_{11}

To test H_{12}–H_{15}, we built separate structural models for the knowledgeable/novice consumer and the small/large community subsamples, and we conducted tests of moderation to determine whether the respective path coefficients differed Table 4 summarizes the analyses and results The procedure that we used was as follows for each test We constructed two multiple-sample models In the first model, all paths were unconstrained between the two groups This is the "no constraints" or baseline model in Table 4 In the second model, we constrained the relevant path (e g , brand relationship quality to community identification for H_{12}) to be equal for both subsamples This is the "equal paths" model The difference in chi-square values between the two models provides a test for the equality of the path for the two groups

Consider the first row of Table 4 in light of this procedure For knowledgeable versus novice consumers, the results indicate that the path from brand relationship quality to community identification is stronger for the knowledgeable group ($\gamma = 19$, s e $= 04$) than for the novice group ($\gamma = 13$, s e $= 23$, $p < 001$), in support of H_{12} Similarly, the path is stronger for the large community subsample ($\gamma = 26$, s e $= 07$) than for the small community subsample ($\gamma = 11$, s e $= 04$, $p \approx 06$) Thus, H_{12} is supported for both moderator variables

With respect to the remaining hypotheses, the paths from community integration to engagement and normative pressure are stronger for knowledgeable consumers than for novice consumers ($p < 10$), but the paths are not different for large and small communities Thus, H_{13} is partly supported In H_{14}, we predicted stronger paths from normative pressure to the three intentions, but this is not supported for either moderator Finally, in H_{15}, we predicted that the path from reactance to membership continuance intentions and brand loyalty intentions would be more negative, this is supported for knowledgeable consumers but not for novice consumers ($p < 10$), and it is supported for large communities but not for small communities On the whole, we found

TABLE 3
Test of Factor Mean Differences Between Knowledgeable/Novice Consumer and Small/Large Community Subsamples

Knowledgeable/Novice Consumer Subsamples	Knowledgeable Consumer Subsample Factor Mean ($\kappa_{Knowledgeable}$)	Novice Consumer Subsample Factor Mean (κ_{Novice})	t-Value, *p*-Value
Community identification	0	– 96	–5 17, $p <$ 001
Community engagement	0	– 52	–1 94, $p \approx$ 05
Normative community pressure	0	– 63	–2 77, $p <$ 01
Brand relationship quality	0	–2 01	–8 09, $p <$ 001

Small/Large Community Subsamples	Small Community Subsample Factor Mean (κ_{Small})	Large Community Subsample Factor Mean (κ_{Large})	t-Value, *p*-Value
Community identification	0	– 76	–5 50, $p <$ 001
Community engagement	0	– 14	– 56, not significant
Normative community pressure	0	– 86	–4 78, $p <$ 001
Brand relationship quality	0	– 31	–1 45, not significant

evidence that brand community's social influence is accentuated more for knowledgeable consumers than for novice consumers and more for large communities than for small communities

Discussion and Implications

In the current research, we studied the social influence of brand community on consumers We found support for our conceptual framework in a large sample of German-speaking car club members Broadly speaking, this example points to the importance of purposely selecting, initiating, managing, and controlling interactions among customers when facilitating brand communities In particular, our study contributes to existing brand community research in several ways

First, our model found that the consumer's relationship with the car brand was an influential antecedent to his or her identification with the brand community This finding provides useful insights into current practice Specifically, when soliciting members for their brand communities, many firms tend to target new or potential customers For example, the Audi club of North America promotes driving schools for new drivers who have not yet purchased a car in the hope that they will buy an Audi National Instruments targets membership in its LabVIEW Zone community toward customers who have recently purchased the LabVIEW software Their goal is for the community to help new users install and learn to use the software Our finding suggests that such approaches toward new member acquisition do not work well if the firm's goals are to enlist engaged, active community members and to create a vibrant, self-sustaining brand community Instead, the impact of brand relationship quality on community identification suggests that it is more effective for a firm to solicit and enroll its existing, long-tenured customers who already have an affirmative relationship with the brand In managerial parlance, brand community membership is more useful as a customer retention device than as a customer acquisition tool

Second, it is noteworthy that a majority of the car clubs we studied were "corporate" brand communities (i e , organized around brands such as Ford or Volkswagen) However, as we noted previously, most consumers have a relationship with a specific car brand, such as the Ford Explorer or the Volkswagen Passat This difference raises the possibility that though identification with the car club is influenced by the customer's relationship with his or her car brand, it may also help foster a connection between the customer and the car company as a whole (e g , Bhattacharya and Sen 2003), thus strengthening the customer's relationship at this level and keeping him or her in the folds of the firm (see also McAlexander, Schouten, and Koenig 2002)

Third, by using a second-wave survey that elicited respondents' self-reported behaviors, we show that members' various behavioral intentions, including membership continuance, recommendation, active participation, and loyalty to the brand, all translate into corresponding subsequent behaviors This finding has considerable managerial value because it links the brand community's influence to customer behaviors that affect profitability and provides grist to the mill of marketing managers who advocate building brand communities for their customers

Fourth, we found that brand communities can influence their members in negative ways, this finding contributes to existing studies that have focused on the positive aspects of brand communities Normative pressure, an extrinsic obligation to abide by the community's norms, results in reac-

TABLE 4
Results of Analyses to Test H_{12}–H_{15}

Hypothesis	Knowledgeable Versus Novice Consumer Subsamples		Small Versus Large Community Subsamples	
	Path Coefficients in Unconstrained Model	χ^2 Test Results	Path Coefficients in Unconstrained Model	χ^2 Test Results
Baseline model		No constraints model $\chi^2(210) = 447\ 7$		No constraints model $\chi^2(210) = 455\ 3$
H_{12} BRQ → CI is greater for knowledgeable/large than for novice/small subsamples, respectively	$\gamma_{(K)}{}^{a} = 19^{***b}$ (04)^{c} $\gamma_{(N)} = 13$ (23)	Equal paths model $\chi^2(211) = 468\ 84$ Test of H_1 $\chi_d{}^2(1) = 21\ 14$, $p <\ 001$ H_{12} is supported	$\gamma_{(S)}{}^{d} = 11^{**}$ (04) $\gamma_{(L)} = 26^{***}$ (07)	Equal paths model $\chi^2(211) = 458\ 90$ Test of H_1 $\chi_d{}^2(1) = 3\ 6$, $p \approx\ 06$ H_{12} is supported
H_{13} CI → CE and CI → CP are greater for knowledgeable/large than for novice/small subsamples, respectively	BCI → CE $\beta_{(K)} = 1\ 07^{***}$ (07) $\beta_{(N)} = 88^{***}$ (10) BCI → NCP $\beta_{(K)} = -2\ 17^{***}$ (30) $\beta_{(N)} = -1\ 11^{**}$ (33)	Equal paths model $\chi^2(212) = 453\ 16$ Test of H_1 $\chi_d{}^2(2) = 5\ 46$, $p \approx\ 06$ H_{13} is supported	BCI → CE $\beta_{(S)} = 1\ 03^{***}$ (08) $\beta_{(L)} = 94^{***}$ (08) BCI → NCP $\beta_{(S)} = -1\ 38^{***}$ (31) $\beta_{(L)} = -2\ 04^{**}$ (34)	Equal paths model $\chi^2(212) = 458\ 89$ Test of H_1 $\chi_d{}^2(2) = 3\ 59$, $p >\ 16$ H_{13} is not supported
H_{14} CP → MCI, CP → CRI, and CP → CPI are greater for knowledgeable/large than for novice/small subsamples, respectively	NCP → MCI $\beta_{(K)} = -\ 23^{***}$ (05) $\beta_{(N)} = -\ 26$ (14) NCP → CRI $\beta_{(K)} = -\ 13^{**}$ (04) $\beta_{(N)} = 07$ (10) NCP → CPI $\beta_{(K)} = -\ 22^{***}$ (04) $\beta_{(N)} = -\ 16$ (08)	Equal paths model $\chi^2(213) = 451\ 54$ Test of H_1 $\chi_d{}^2(3) = 3\ 8$, $p >\ 28$ H_{14} is not supported	NCP → MCI $\beta_{(S)} = -\ 18^{**}$ (06) $\beta_{(L)} = -\ 25^{***}$ (07) NCP → CRI $\beta_{(S)} = -\ 03$ (05) $\beta_{(L)} = -\ 14^{*}$ (07) NCP → CPI $\beta_{(S)} = -\ 13^{***}$ (04) $\beta_{(L)} = -\ 24^{***}$ (06)	Equal paths model $\chi^2(213) = 458\ 39$ Test of H_1 $\chi_d{}^2(3) = 3\ 09$, $p >\ 37$ H_{14} is not supported
H_{15} RE → MCI and RE → BLI are greater for knowledgeable/large than for novice/small subsamples, respectively	R → MCI $\beta_{(K)} = -\ 04^{*}$ (02) $\beta_{(N)} = 04$ (07) R → BLI $\beta_{(K)} = -\ 05^{*}$ (02) $\beta_{(N)} = 10$ (09)	Equal paths model $\chi^2(212) = 452\ 90$ Test of H_1 $\chi_d{}^2(2) = 5\ 2$, $p \approx\ 07$ H_{15} is supported	R → MCI $\beta_{(S)} = -\ 00$ (03) $\beta_{(L)} = -\ 14^{***}$ (03) R → BLI $\beta_{(S)} = -\ 00$ (04) $\beta_{(L)} = -\ 19^{***}$ (04)	Equal paths model $\chi^2(212) = 461\ 11$ Test of H_1 $\chi_d{}^2(2) = 5\ 2$, $p \approx\ 054$ H_{15} is supported

*$p <\ 05$
**$p <\ 01$
***$p <\ 001$
[a] The subscript "K" refers to the knowledgeable subsample, and "N" refers to the novice subsample
[b] Unstandardized coefficient
[c] Standard error
[d] The subscript "S" refers to small community subsample, and "L" refers to the large community subsample
Notes BRQ = brand relationship quality, CI = community identification, CE = community engagement, CP = normative community pressure, RE = reactance, MCI = membership continuance intentions, CRI = community recommendation intentions, CPI = community participation intentions, and BLI = brand loyalty intentions

tance, a motivational state of resistance, and both are found to influence the consumer's behavioral intentions negatively Notably, the source of normative pressure and reactance in our model was the consumer's engagement in the community, indicating that the community's positive influences give birth to its negative influences We suggest that such a finding should not be taken as a final conclusion but rather as a preliminary finding that provokes further thought

One question that arises from this finding is the composition of community engagement It is possible that engagement comprises multiple components, with some leading to wholly positive outcomes and others to negative states For example, it could be that private aspects of community engagement lead to positive outcomes, whereas perceptions of pressure and reactance stem mainly from the conspicuous public behaviors that highly engaged consumers frequently perform (e g , Cialdini and Goldstein 2004) Further research is necessary to study this issue

Another question is understanding how the firm's role in sponsoring the brand community leads to negative community influences In the current study, the car companies visibly supported most of the respective car clubs However, many other successful brand communities are organized and facilitated entirely by enthusiastic customers with little or no firm involvement For example, National Instruments' LabVIEW product has several active customer communities, such as OpenG (www openg org) and LAVA (www lavausergroup org), that were begun and are operated by LabVIEW enthusiasts Although this issue remains to be studied, we conjecture that participation in enthusiast-organized communities may be less susceptible to the negative influences that our study reveals If this is the case, firms may be well advised to adopt a passive, "behind-the-scenes" approach when facilitating brand communities

Fifth, we found that both the consumer's brand knowledge and the community size moderate the brand community's influence on its members (see Tables 3 and 4) Consumers who are knowledgeable about the brand not only experience higher levels of identification, engagement, and pressure but also reveal stronger paths in our model than do novices This further reinforces the importance of firms' recruiting seasoned customers rather than novices into brand communities if their goal is to influence customers

Furthermore, we found that the moderating impact of brand community size was more nuanced Smaller car clubs engendered higher levels of identification and normative pressure, perhaps because of the richer and multifaceted nature of interpersonal relationships therein (Dholakia, Bagozzi, and Pearo 2004) However, we found that the strengths of the paths in the conceptual model were greater for larger car clubs, suggesting that when firms plan venues for enabling consumer interactions, larger sizes are more appropriate if their goal is to have greater community influence on key behaviors

Despite these contributions, we acknowledge the limitations of this research The survey method that we used collected all the measures except self-reported behaviors only once As a result, although we took various precautions during analysis, such as establishing discriminant validity of constructs and comparing the performance of our proposed model against that of rival models, the results must still be interpreted with caution In addition, care must also be taken when extrapolating our findings to other types of brand communities, such as those that predominate virtual, enthusiast-run communities (e g , Dholakia, Bagozzi, and Pearo 2004) or those that consist of brand-centered events that are organized infrequently by the firm, such as Brandfests (McAlexander, Schouten, and Koenig 2002)

In conclusion, it seems appropriate to echo the optimism of brand community researchers such as McAlexander, Schouten, and Koenig (2002) and Muniz and O'Guinn (2001) and to suggest that brand communities offer a fresh, effective, and viral approach to building brands in the present-day, unresponsive marketing environment Marketers may do well to take advantage of the opportunities that brand communities present

APPENDIX
Summary of Measures

Construct	Measures[a] (Item Loading)[b]
Constructs in Conceptual Model	
Community identification	1 I am very attached to the community (80*)
	2 Other brand community members and I share the same objectives (67*)
	3 The friendships I have with other brand community members mean a lot to me (83*)
	4 If brand community members planned something, I'd think of it as something "we" would do rather than something "they" would do (80*)
	5 I see myself as a part of the brand community (82*)
Community engagement	1 I benefit from following the brand community's rules (61*)
	2 I am motivated to participate in the brand community's activities because I feel better afterwards (81*)
	3 I am motivated to participate in the brand community's activities because I am able to support other members (82*)
	4 I am motivated to participate in the brand community's activities because I am able to reach personal goals (70*)
Normative community pressure	1 In order to be accepted, I feel like I must behave as other brand community members expect me to behave (74*)
	2 My actions are often influenced by how other brand community members want me to behave (73*)
Reactance	1 Since I joined the brand community, I have felt a desire to preserve my personal freedom (1 0*)
Membership continuance intentions	1 It would be very difficult for me to leave this brand community (77*)
	2 I am willing to pay more money to be a member of this brand community than I would for membership in other brand communities (64*)
	3 I intend to stay on as a brand community member (72*)

APPENDIX
Continued

Construct	Measures[a] (Item Loading)[b]
Community recommendation intentions	1 I never miss an opportunity to recommend this brand community to others (65*) 2 If friends or relatives were to search for an automobile brand community, I would definitely recommend this one (70*)
Community participation intentions	1 I intend to actively participate in the brand community's activities (1 0*)
Community membership behavior[d]	1 How often did you think about leaving this brand community within the last ten weeks?[c] (1 0*)
Community recommendation behavior[d]	1 How often did you recommend this brand community within the last ten weeks? (1 0*)
Community participation behavior[d]	1 How often did you participate in activities of this brand community within the last ten weeks? (1 0*)
Brand relationship quality	1 This brand says a lot about the kind of person I am (50*) 2 This brand's image and my self-image are similar in many respects (72*) 3 This brand plays an important role in my life (73*)
Brand loyalty intentions	1 I intend to buy this brand in the near future (89*) 2 I would actively search for this brand in order to buy it (84*) 3 I intend to buy other products of this brand (64*)
Brand-related purchase behavior[d]	1 How often did you buy products of this brand within the last ten weeks? (1 0*)
Moderating Variables	
Brand knowledge	1 When compared to other people, I know a lot about this brand (82*) 2 My friends consider me an expert regarding this brand (82*) 3 I consider myself very experienced with this brand (82*)
Brand community size	1 How many members does your car club have?[e]

*$p < 001$
[a] Unless indicated otherwise, we obtained responses using ten-point Likert scales, anchored by 1 = "strongly disagree" and 10 = "strongly agree"
[b] We report standardized item loadings
[c] We reverse coded these items
[d] This construct contains a single item and was elicited as a frequency through an open-ended question, we then recoded it into the following four categories never, one to five times, six to ten times, and more than ten times
[e] The choices for this question were (1) less than 50 members, (2) 50–199 members, (3) 200–499 members, (4) 500–999 members, and (5) 1000 members or more

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Guido Berens, Cees B.M. van Riel, & Gerrit H. van Bruggen

Corporate Associations and Consumer Product Responses: The Moderating Role of Corporate Brand Dominance

This study investigates the effect of corporate brand dominance—that is, the visibility of a company's corporate brand in product communications—on the relationship between corporate associations and product evaluations The results show that corporate brand dominance determines the degree to which associations with the company's corporate ability and corporate social responsibility influence product attitudes, as well as the nature of the moderating effects of fit and involvement

When communicating with customers, multibusiness companies can choose whether to label an individual product by a separate brand name ("stand-alone"), by only the corporate brand name ("monolithic"), or by the two names together ("endorsed" or "dual") (Laforet and Saunders 1994, Olins 1989) For example, in general, Procter & Gamble uses separate brand names without reference to the corporate brand, Philips uses its corporate brand prominently on most of its products, and Nestlé uses its corporate name as an "endorser" behind many of its products An important managerial question is, Which of these strategies should a company use, and under what conditions? Although some empirical studies (Milberg, Park, and McCarthy 1997, Rao, Agarwal, and Dahlhoff 2004) have examined the effects of using different corporate branding strategies on people's reactions, it is not clear how a company's corporate branding strategy influences the effects of the different types of associations that people have with the corporate brand Several academic studies have shown that customers' different types of associations with a company have different influences on their product evaluations (e g , Brown and Dacin 1997, Sen and Bhattacharya 2001) Particularly, these studies have found that associations with a company's corporate ability (CA) and its corporate social responsibility (CSR) both influence product evaluations but that CA associations have a stronger effect than CSR associations Thus, an important question is, How do the effects of corporate associations on consumer product responses differ for different corporate branding strategies? Answering this question can provide organizations with insights into which branding strategy is most effective when a company wants to leverage a specific type of corporate association

To address this question, we present the results of a study that examines the effects of the corporate branding strategy of a financial services company on the transfer of CA and CSR associations to customer product evaluations The results show that CA associations are most effective when organizations use a monolithic branding strategy, and CSR associations are most effective when organizations use an endorsed strategy In addition, corporate brand dominance (CBD) influences the way that the effects of CA and CSR are moderated by the fit between the company and the product and by consumer involvement with the product

Literature Review

Several studies have explicitly investigated the roles of CA and/or CSR associations in consumer reactions to products (for an overview, see Brown 1998) However, researchers have begun only recently to address the psychological mechanisms through which these types of corporate associations influence people's product responses (Brown and Dacin 1997, Gurhan-Canli and Batra 2004, Keller and Aaker 1998, Sen and Bhattacharya 2001) In a pioneering study, Brown and Dacin (1997) found that CA associations influence product attitudes through their influence on the evaluation of specific product attributes ("product sophistication") as well as through their influence on the overall evaluation of the company In contrast, CSR associations influence product attitudes only through their influence on the overall company evaluation Keller and Aaker (1998) report similar findings, and Madrigal (2000) reports that CSR also affects judgments of specific product attributes

More recently, researchers have extended Brown and Dacin's (1997) study by investigating the conditions in which CA and CSR influence product responses Sen and Bhattacharya (2001) find that the type of CSR a company

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adopts moderates the effect of CSR on product preferences Gurhan-Canli and Batra (2004) show that a high risk associated with a product increases the effect of CA but not the effect of CSR Madrigal (2000) finds that the perceived fit between the product and the corporate brand positively influences both the effect of CA associations and the effect of CSR associations The latter result is consistent with findings in the literature on consumer evaluations of product brand extensions (for a review, see Czellar 2003) This literature examines the transfer of CA-type associations with a product brand (e g , brand quality) to evaluations of new products that are marketed under the brand name, and it has often reported that perceived fit positively moderates this transfer In addition, the literature has shown that brand associations have more influence on consumer judgments when people have a low involvement with the type of product and/or with the judgment itself (e g , Maheswaran, Mackie, and Chaiken 1992) or when people have a low expertise with the product class (e g , Broniarczyk and Alba 1994)

To date, few studies have investigated the effects of companies' branding strategies as a moderating variable in the transfer of corporate associations Rao, Agarwal, and Dahlhoff (2004) find that a monolithic strategy leads to more favorable stock market results than a stand-alone strategy Sheinin and Biehal (1999) report that corporate associations influence product attitudes when only the corporate brand is shown on the product advertisement but not when a subsidiary brand is also shown Furthermore, Milberg, Park, and McCarthy (1997) show that the (main) effect of fit on the evaluation of product brand extensions is smaller when both a parent brand and a subbrand are shown than when only the parent brand is shown This result suggests that the process of brand image transfer is different when the (corporate) parent brand is dominantly visible than when the parent brand is not dominantly visible However, Milberg, Park, and McCarthy do not test this proposition In addition, it is not clear how brand strategies affect the influence of other moderating variables, such as product involvement Finally, the results from studies in the area of product brands may not be completely applicable in a corporate branding context This is because (1) corporate brands often evoke associations with CSR, whereas in general, product brands do not and (2) even CA-type associations may be qualitatively different for corporate brands than for product brands (Aaker 1996) For corporate brands, in general, these associations are based on more than one category of products and on more than one source of information This variety in sources can lead to a more elaborate and confidently held impression than that which is obtained from knowledge about individual products In this article, we investigate the influence of a company's branding strategy on the effects of corporate associations with CA and CSR and on the moderating effects of fit and involvement

Hypotheses Development

Figure 1 graphically displays the research model underlying our study We propose four sets of relationships First, we propose that there is a relationship between associations with a company's CA and CSR and people's product attitudes (labeled "I" in Figure 1) (Brown and Dacin 1997, Madrigal 2000) Second, we expect that these relationships are moderated by the degree of perceived fit between the product and the brand and by the degree of involvement that people have with the product (labeled "II" in Figure 1) Third, we expect that these moderating effects are in turn moderated by the degree to which the corporate brand is dominantly visible in product communications (labeled "III" in Figure 1) Fourth, we expect that the associations with CA and CSR are influenced by the amount of knowledge that people have about the company (Laroche, Kim, and Zhou 1996) and that product attitudes are influenced by information that people receive about the product itself (labeled "IV" in Figure 1)[1] However, we do not test these latter two relationships in our empirical study

To predict how CBD, fit, and involvement moderate the effects of CA and CSR, we use the accessibility–diagnosticity framework (Feldman and Lynch 1988, Lynch, Marmorstein, and Weigold 1988), which explains the influence of any piece of information stored in a person's memory on any evaluation that person makes It states that the likelihood that information is used is a function of (1) the accessibility of the information in the person's memory, (2) the accessibility of other pieces of information, and (3) the perceived diagnosticity of the information Information is more likely to be used for a certain evaluation when it is easily recalled, when other "competing" pieces of information are less easily recalled, and when the information is perceived as useful for the evaluation Furthermore, a person uses only enough information for a certain evaluation to satisfy a "diagnosticity threshold"—that is, a minimum level of certainty about the evaluation (Lynch, Marmorstein, and Weigold 1988) In this study, we assume that CBD influences the (relative) accessibility of CA and CSR associations, that perceived fit influences the diagnosticity of the associations, and that product involvement influences a person's diagnosticity threshold We explain this reasoning, which we illustrate in Table 1, and its consequences for the effects of CA and CSR in the subsequent paragraphs

The Effect of CBD

We use the term "CBD" to indicate the degree of visibility of the corporate brand compared with the visibility of a subsidiary brand in product communications This dominance is a direct consequence of a company's corporate branding strategy When a company uses a monolithic branding strategy, CBD is high In contrast, when a company uses an endorsed branding strategy, CBD is low

It seems likely that when the corporate brand is dominantly visible, CA and CSR associations have more of an impact on product evaluations than when the corporate brand is less dominantly visible (Sheinin and Biehal 1999) In line with the logic of the accessibility–diagnosticity framework, we posit that when the dominance of the corporate brand decreases, CA and CSR associations with the corporate brand become less accessible than associations

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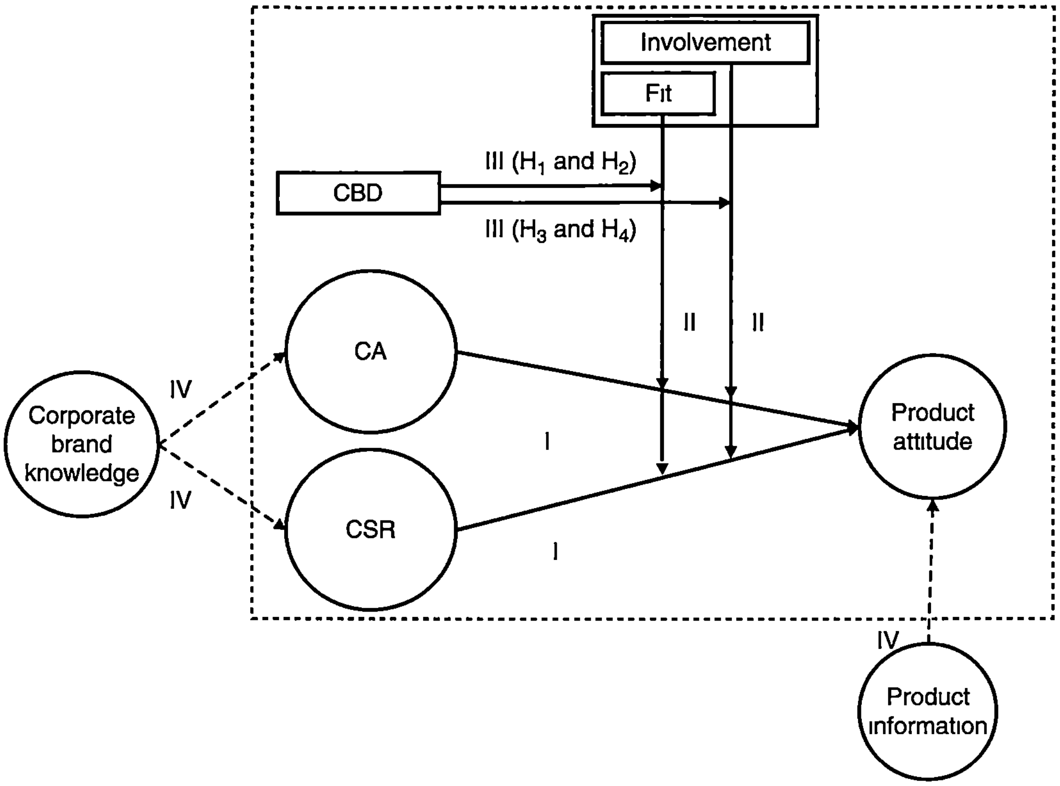
[1] We thank an anonymous reviewer for suggesting the latter two effects

FIGURE 1
Research Model: The Effect of CBD, Fit, and Involvement on the Degree to Which CA and CSR Associations Influence Product Attitudes



Notes The Roman numerals I–IV refer to the different sets of relationships discussed in the text Arrows with a solid line refer to relationships tested in the empirical study, and arrows with a dashed line refer to relationships not tested in the empirical study This is also indicated by the dashed frame that encloses the tested relationships Arrows pointing to the lines of other arrows refer to interactions

with the subsidiary brand (see Table 1), and thus the corporate brand associations have less influence on product evaluations More important, we also expect that the dominance of the corporate brand in product communications determines the degree to which perceived fit and product involvement are important in the transfer of CA and CSR associations

CBD and the moderating effect of fit "Fit" can be defined as the similarity between a (extension) product and a brand (e g , Bhat and Reddy 2001) This similarity consists of two aspects (1) that between the product category (or categories) of the brand and the category of the product and (2) that between the associations evoked by the brand and the associations evoked by the product In this article, we focus on the latter aspect, which encompasses the former (Bhat and Reddy 2001) Previous research has shown that the effects of CA and CSR associations on consumer product evaluations are stronger when people perceive a high fit between the product and the brand (e g , Madrigal 2000) In terms of the accessibility–diagnosticity framework, perceived fit influences the diagnosticity of corporate associations for the evaluation of a new product (Ahluwalia and Gurhan-Canli 2000) and thus the likelihood that the associations will be used When consumers perceive the product as similar to the brand's image, they will reason that what they know about the brand can be used to predict the product's attributes However, we expect that this reasoning holds for the effect of CA associations but not for the effect of CSR associations

Furthermore, we predict that the moderating influence of fit on the effect of CA associations depends on the dominance of the corporate brand In line with the logic of the accessibility–diagnosticity framework, we posit that when the corporate brand is not dominantly visible, subsidiary brand associations are more accessible than corporate associations (see the entries under "Accessibility" in Table 1) and are likely to be diagnostic enough to satisfy the diagnosticity threshold Therefore, we expect that these associations alone influence product evaluations and that increasing the diagnosticity of CA associations with the corporate brand (through a higher degree of fit) does not enhance their influence Thus, it is likely that the moderating effect of fit on the influence of CA associations is absent or weaker when the corporate brand is not dominantly visible This expectation is consistent with the results of Milberg, Park, and McCarthy's (1997) study, which shows that the main effect of fit on the evaluation of products diminishes when the dominance of the parent brand decreases

Whether the fit between a product and a brand influences diagnosticity of a certain type of corporate associa-

TABLE 1
The Effects of CBD, Fit, and Involvement on the Accessibility and Diagnosticity of CA and CSR Associations and on People's Diagnosticity Threshold

		Low CBD				High CBD			
		Low Fit		High Fit		Low Fit		High Fit	
		Low Involvement	High Involvement	Low Involvement	High Involvement	Low Involvement	High Involvement	Low Involvement	High Involvement
CA	Accessibility	Medium	Medium	Medium	Medium	High	High	High	High
	Diagnosticity	Low	Low	High	High	Low	Low	High	High
	Diagnosticity threshold	Low	High	Low	High	Low	High	Low	High
CSR	Accessibility	Medium	Medium	Medium	Medium	High	High	High	High
	Diagnosticity	Low/medium	Low/medium	Low/medium	Low/medium	Low/medium	Low/medium	Low/medium	Low/medium
	Diagnosticity threshold	Low	High	Low	High	Low	High	Low	High

tions is likely to depend on whether these associations can be translated directly into product attributes (Batra and Homer 2004) Madrigal (2000) finds that the moderating effect of fit on the influence of (environmental) CSR associations is even stronger than the effect of fit on the influence of CA associations However, he explicitly chose an environmentally responsible product so that in his study, CSR associations could be directly translated into attributes of the product When the product is not positioned explicitly as socially responsible, we expect that this direct translation into product attributes cannot occur and therefore that fit does not determine the influence of CSR associations In the industry that we focus on herein, the financial services industry, only so-called socially responsible investment funds are positioned as socially responsible, whereas other products and services are not Therefore, we expect that for most products in this industry, fit does not influence the diagnosticity of CSR associations, and CBD does not influence the moderating effect of fit Rather, we expect that the diagnosticity of CSR is low to moderate, independent of the degree of perceived fit (see Table 1) Thus, we hypothesize a three-way interaction among CA associations, fit, and CBD but not among CSR associations, fit, and CBD

> H_1 When CBD is high, CA associations have a stronger effect on product attitudes when fit is high than when fit is low When CBD is low, the effect of CA associations is not moderated by fit
>
> H_2 The effect of CSR associations on product attitudes is not moderated by fit, independent of whether CBD is high or low

CBD and the moderating effect of involvement We also expect that CBD influences the effect of product involvement Involvement has been defined as "an unobservable state of motivation, arousal, or interest evoked by a particular stimulus" (Jain and Srinivasan 1990, p 594) In this study, we focus on consumer involvement with a product category Maheswaran, Mackie, and Chaiken (1992) find that when people have a low involvement with a product or task, CA associations have more influence on product evaluations than when people are highly involved In line with the accessibility–diagnosticity framework, we posit that this is because a person's threshold for the diagnosticity of information decreases when involvement decreases (see Table 1) Thus, he or she is more easily satisfied with information that is less diagnostic but more accessible than actual product attribute information (Lynch, Marmorstein, and Weigold 1988) Alternatively, in such a case, it could be that people use the high accessibility of the CA associations as a heuristic cue to infer a high diagnosticity because a low involvement reduces people's motivation to assess diagnosticity at all (Menon and Raghubir 2003) We assume that product information is less accessible in general than are people's associations with the company, because it takes some effort to process product information, whereas corporate associations only have to be recalled from memory (Maheswaran, Mackie, and Chaiken 1992) Therefore, we expect that involvement negatively moderates the effects of corporate associations on product attitudes Although we assume that the diagnosticity of CSR associations for evaluating a product is lower than the diagnosticity of CA associations (Brown and Dacin 1997), we expect that the effect of involvement occurs for both CA and CSR associations When people have a low diagnosticity threshold, it is likely that even associations that have a relatively low degree of diagnosticity can have an effect on product evaluations

Furthermore, we expect that the moderating influence of involvement depends on the CBD When the corporate brand is dominantly visible, associations with this brand are more easily accessible When people have a low involvement with the product and therefore have a low diagnosticity threshold, they tend to use only the most accessible information Therefore, corporate associations are especially likely to be used as a cue to evaluate the product Conversely, when corporate associations are less accessible because the corporate brand is not dominantly visible, it may be that they influence product evaluations only when people have a high diagnosticity threshold (i e , when they are highly involved with the product) In such a case, information that is less accessible can also influence people's judgments However, because this is the case only for information that has a relatively high diagnostic value for evaluating the product (Alba, Hutchinson, and Lynch 1991), we expect that this positive moderating influence holds for CA associations but not for CSR associations Therefore, we formulate the following hypotheses

> H_3 When CBD is high, CA associations have a stronger effect on product attitudes when involvement is low than when involvement is high When CBD is low, CA associations have a stronger effect on product attitudes when involvement is high than when involvement is low
>
> H_4 When CBD is high, CSR associations have a stronger effect on product attitudes when involvement is low than when involvement is high When CBD is low, the effect of CSR associations is not moderated by involvement

Method

To test our hypotheses, we conducted a field experiment Our respondents were potential customers of a large financial services provider, who were asked to evaluate products that were marketed by subsidiaries of this company These products were shown on advertisements in which we manipulated the dominance of the corporate brand as a between-subjects variable

Materials

In our study, the financial services provider consists of a large number of subsidiary banks and insurance companies, most of which operate under their own name (without explicitly referring to the parent company) We investigated the evaluation of eight different products that are marketed by four subsidiaries From each subsidiary, we chose one product from the retail banking market and one product from the wholesale banking market (see Table 2) Each respondent evaluated one of these products after being confronted with the product advertisement To ensure sufficient realism of the materials, we based these on existing print advertisements

To manipulate CBD, two versions of each advertisement were developed On the first of these advertisements (low CBD), the name and logo of the parent company were added in a small font below the name and logo of the subsidiary company after the words "part of" On the second (high CBD) advertisement, the name and logo of the subsidiary were replaced completely by the corporate name and logo In addition, the background color of the advertisement was modified to the corporate color (orange) Examples of the advertisements used, including the manipulation of CBD, appear in Figure 2

Respondents

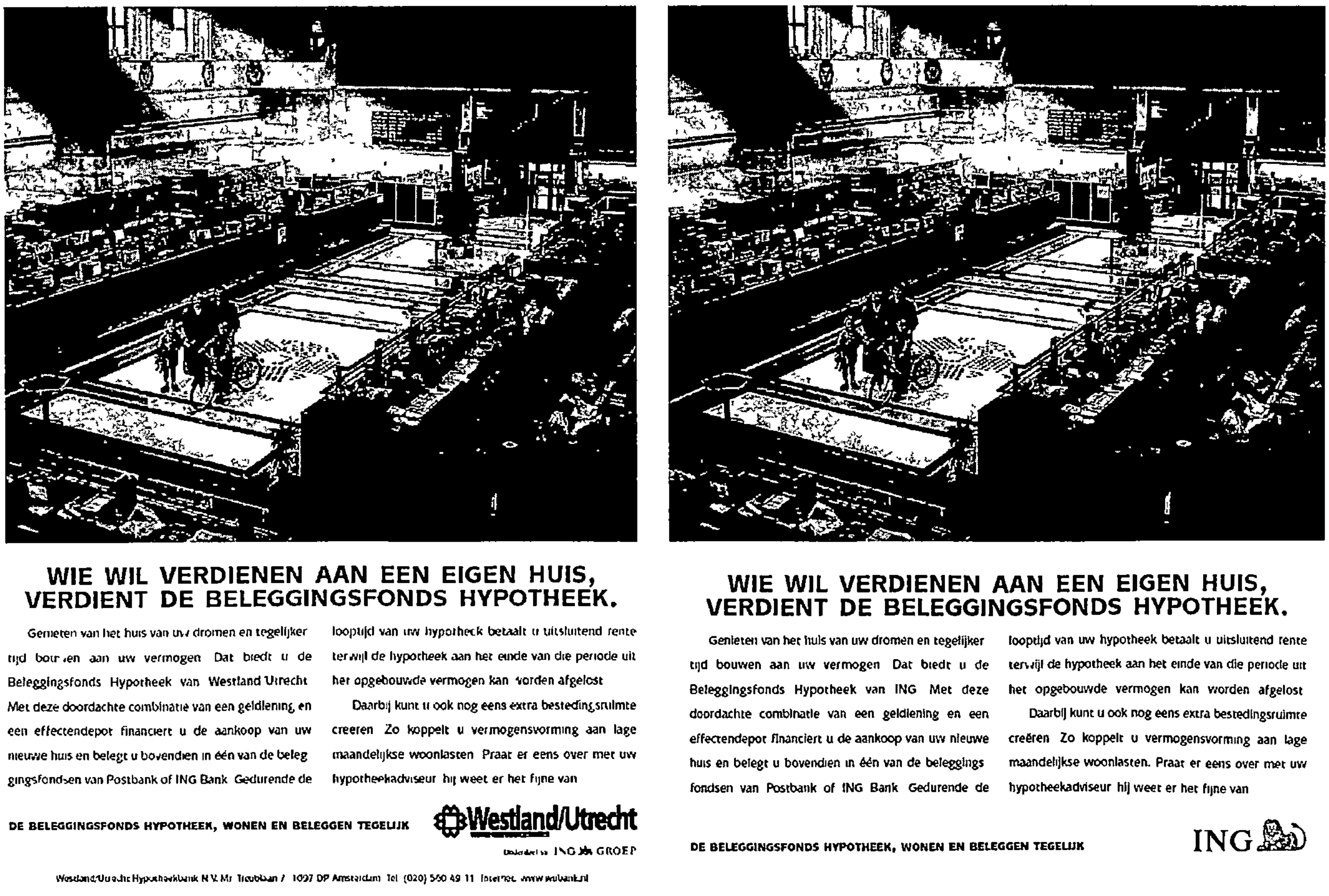
A total of 273 respondents participated in the study, with a roughly equal number of retail and wholesale prospects (139 and 134, respectively) All respondents were responsible for financial matters in their families and companies, respectively To ensure that questions about specific associations with the corporate brand would be meaningful to the respondents, we asked them about their familiarity with the corporate brand (and its subsidiaries) on seven-point semantic differential scales For respondents who indicated that they were completely unfamiliar with the corporate brand (i e , those who obtained a score of "1"), the interview was completed, but we excluded their responses from the analyses We randomly assigned respondents to one of the two CBD conditions

TABLE 2
Overview of Products

Subsidiary	Retail Banking Market	Wholesale Banking Market
A	Industrial disability insurance (n = 39)	Employee benefit plan (n = 37)
B	Ordering stocks and bonds through the Internet (n = 32)	Payment service within Europe (n = 30)
C	Investment fund mortgage (n = 44)	Real estate finance for entrepreneurs (n = 36)
D	Financial consultancy for prospective lawyers (n = 24)	Consultancy for succession problems in family-owned businesses (n = 31)

Notes For reasons of confidentiality, the brands are labeled A–D

FIGURE 2
Sample Advertisements with Low (Left) and High (Right) CBD



WIE WIL VERDIENEN AAN EEN EIGEN HUIS,
VERDIENT DE BELEGGINGSFONDS HYPOTHEEK.

Genieten van het huis van uw dromen en tegelijker tijd bouwen aan uw vermogen Dat biedt u de Beleggingsfonds Hypotheek van Westland Utrecht Met deze doordachte combinatie van een geldlening en een effectendepot financiert u de aankoop van uw nieuwe huis en belegt u bovendien in één van de beleggingsfondsen van Postbank of ING Bank Gedurende de looptijd van uw hypotheek betaalt u uitsluitend rente terwijl de hypotheek aan het einde van die periode uit het opgebouwde vermogen kan worden afgelost

Daarbij kunt u ook nog eens extra bestedingsruimte creeren Zo koppelt u vermogensvorming aan lage maandelijkse woonlasten Praat er eens over met uw hypotheekadviseur hij weet er het fijne van

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Onderdeel van ING GROEP

Westland/Utrecht Hypotheekbank N.V. Mr Treublaan 7 1097 DP Amsterdam Tel (020) 550 49 11 Internet www.wubank.nl

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VERDIENT DE BELEGGINGSFONDS HYPOTHEEK.

Genieten van het huis van uw dromen en tegelijker tijd bouwen aan uw vermogen Dat biedt u de Beleggingsfonds Hypotheek van ING Met deze doordachte combinatie van een geldlening en een effectendepot financiert u de aankoop van uw nieuwe huis en belegt u bovendien in één van de beleggingsfondsen van Postbank of ING Bank Gedurende de looptijd van uw hypotheek betaalt u uitsluitend rente terwijl de hypotheek aan het einde van die periode uit het opgebouwde vermogen kan worden afgelost

Daarbij kunt u ook nog eens extra bestedingsruimte creëren Zo koppelt u vermogensvorming aan lage maandelijkse woonlasten. Praat er eens over met uw hypotheekadviseur hij weet er het fijne van

DE BELEGGINGSFONDS HYPOTHEEK, WONEN EN BELEGGEN TEGELIJK

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Procedure

The wholesale prospects were prerecruited by telephone and interviewed at their offices Retail prospects were interviewed at their homes We used a face-to-face interview procedure in which the interviewer posed questions and filled out the respondent's answers After asking questions about demographics and familiarity with the different brands, the interviewer showed the product advertisement When the respondent had studied the advertisement, it was removed from view, and the respondent was asked to evaluate the product shown in the advertisement and then to indicate his or her purchase intentions to the product Next, he or she answered questions about perceived fit between the product and the corporate brand, this was followed by questions about involvement with the product Finally, the questionnaire was given to the respondent, who filled out the remaining questions about CA and CSR associations (in that order) On average, the interviews lasted for approximately 50 minutes

Measures

For all measures, we used multiple-item scales that consisted of seven-point Likert or semantic differential scales All measures and their reliabilities, as well as descriptive statistics and correlations, appear in the Appendix

Independent measures Our independent variables are CA and CSR associations To measure these constructs, we adapted Fombrun, Gardberg, and Sever's (2000) reputation quotient scale, which captures several aspects of corporate reputation This 20-item scale distinguishes the following six dimensions emotional appeal, products and services, vision and leadership, workplace environment, social and environmental responsibility, and financial performance In line with Brown and Dacin's (1997, p 68) definition of CA as "the company's expertise" and their operationalization of it as the quality of the processes in a company that deal with product development and manufacturing, we chose the products and services and the workplace environment subscales to operationalize CA associations [2] Vision and leadership is also relevant to CA, but the items in this scale could be equally interpreted as pertaining to leadership regarding CSR [3] Financial performance may be conceptualized better as a (perceived) consequence of CA than as an aspect of CA

Moderator measures We operationalized perceived fit as the perceived similarity between the image of the corporate brand and the image of the product We measured this construct with two items adapted from previous literature on brand extensions (e g , Bhat and Reddy 2001) We measured involvement with the product category with two of the three items of the relevance subscale from the new involvement profile (Jain and Srinivasan 1990) These items capture cognitive (rather than affective) involvement (i e , the product's perceived relevance and importance rather than its perceived pleasure or sign value) We made this choice because, in general, these latter dimensions are not applicable to financial products and services (Aldlaigan and Buttle 2001)

Dependent measures We measured people's attitudes toward the products on three subscales quality, appeal (feelings about the product), and reliability (cf Petroshius and Monroe 1987) In addition, we measured respondents' product purchase intentions with three items (cf Petroshius and Monroe 1987)

Scale Validation

To purify our measures, we computed item-to-total correlations for each scale, followed by a confirmatory factor analysis of all variables We began with a total of 27 items and ultimately retained 23 We dropped two items from the product attitude scale and one item from the involvement scale because they had a low correlation (< 4) with the total scale We also dropped one item from the CSR scale because it seemed to measure an overall evaluation rather than CSR

Because some of the constructs we used (i e , CA and product attitude) were composed of different subscales, our measurement model was a second-order factor model (see Rindskopf and Rose 1988) This model showed adequate fit (χ^2_{233} = 315 54, p = 00, standardized root mean square residual = 05, comparative fit index = 97) [4] However, one of the items in the CSR scale ("Do you think that [parent company] behaves in an ethically responsible manner?") had high positive residuals (>2 58) with items from the involvement and purchase intention scales, suggesting that this item is related more to an overall evaluation than to the specific CSR concept (see Steenkamp and van Trijp 1991) Therefore, we removed this item The fit of the resulting model was also adequate (χ^2_{211} = 284 43, p = 00, standardized root mean square residual = 05, comparative fit index = 98) However, the decrease in fit caused by imposing the second-order factors was significant (χ^2_{16} = 30 30, p = 02), suggesting that the better parsimony of the second-order model did not quite weigh up to the loss of fit that resulted from "forcing" the subscales under the second-order factors (see Rindskopf and Rose 1988) However, because the fit of the second-order factor model was adequate and because it corresponded to the constructs we identified, we proceeded to use the previously defined scales

Results

We analyzed the data using hierarchical moderated regression models The independent variables are CA, CSR,

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[2] Although the name of this variable suggests a focus on employee treatment, it addresses the expertise of employees and management

[3] We thank an anonymous reviewer for this suggestion

[4] Note that the model yielded an inappropriate solution (a negative estimate of the error variance or "Heywood case") for one of the items on the involvement scale We remedied this by forcing the estimate of the error variance for this item to be positive This strategy is justifiable in our case, given the relatively large size of our sample (see Dijkstra 1992)

CBD, fit, involvement, and the interactions between these variables, the dependent variables are product attitude and purchase intention However, because product attitude is our main dependent variable, we focus our discussion on the results for this variable and report the results for purchase intention only when they diverge from those for product attitude To account for the different types of products that we used, we also included dummy variables that represent the different products as independent variables Although moderated regression models are especially sensitive to measurement error, the biasing effects of such errors are minimal when the reliability of all the scales used is high (i e , approximately 8 or 9, see Ping 1996) This is the case with our measures, so we assumed that using regression analyses rather than structural equation models would not substantially bias our results

To improve the interpretability of the main effects in the presence of interaction variables, we mean-centered the continuous variables before computing the interaction variables (see Jaccard, Turrisi, and Wan 1990) The main effects can be interpreted as conditional effects, or effects that hold when the other continuous variables in the model are at their mean (i e , zero) To estimate the "real" (unconditional) main effects, we examined the models lower in the hierarchy that do not include the interaction terms under consideration To interpret the significant three-way interactions, we examined the conditional two-way interactions that constitute each of them as well as the conditional main effects of CA and CSR, which in turn constitute the significant conditional two-way interactions (see Jaccard, Turrisi, and Wan 1990) We also tested the significance of the conditional effects In doing so, we used modified levels of the significance level alpha to correct for performing multiple statistical tests on the same interaction effect (Holm 1979) We present these alpha values in the discussion of our results

The results of the hierarchical regression model for product attitude appear in Table 3 We observe that CA associations have a significant, positive effect on product attitudes, but CSR associations do not In addition, there is a significant, negative interaction between CSR and CBD, implying that CSR associations especially influence product attitudes when the corporate brand is not dominantly visible on the product advertisement (i e , when the corporate brand is used as an endorser) Regarding our hypotheses, we note that the results for CA are largely as we predicted, whereas the results for CSR are not

CBD and the Moderating Effect of Fit

We hypothesized that the dominance of the corporate brand would influence the moderating effect of fit for CA associations but not for CSR associations (H_1 and H_2) Conforming

TABLE 3
Results of Hierarchical Regression Model for Product Attitude

	Main Effects Only		Main Effects + Two-Way Interactions		Full Model	
	B	t	B	t	B	t
(Constant)	– 15	– 91	– 14	– 87	– 16	–1 04
Product A retail	21	1 03	16	81	15	76
Product B retail	– 06	– 26	– 11	– 55	– 08	– 39
Product C retail	– 05	– 26	– 10	– 51	– 09	– 47
Product D retail	– 22	– 96	– 15	– 66	– 09	– 38
Product A wholesale	43	2 08	39	1 94	39	1 99
Product B wholesale	25	1 15	20	93	20	96
Product C wholesale	20	95	09	44	10	51
CA	34	4 64	24	2 35	22	2 13
CSR	06	1 00	27	2 79	28	2 99
CBD	07	70	09	89	09	84
Fit	27	6 55	16	2 70	19	3 17
Involvement	12	3 63	20	4 25	18	3 84
CA × fit			01	21	– 12	–1 59
CA × involvement			03	62	15	2 37
CA × CBD			14	98	14	1 03
CSR × fit			09	1 97	24	3 68
CSR × involvement			– 07	–2 06	– 15	–3 10
CSR × CBD			– 33	–2 75	– 31	–2 61
Fit × CBD			19	2 36	16	1 98
Involvement × CBD			– 13	–1 96	– 08	–1 29
CA × fit × CBD					24	2 29
CA × involvement × CBD					– 24	–2 69
CSR × fit × CBD					– 30	–3 18
CSR × involvement × CBD					15	2 20
Adjusted R^2		36		40		43

Notes All coefficients are unstandardized regression coefficients to this expectation, there was a significant, positive three-way interaction among CA, fit, and CBD Conversely, and contrary to our expectation, there was a significant, negative three-way interaction among CSR, fit, and CBD[5] To interpret these interactions, we next discuss the conditional effects that underlie them

The interaction between CA and fit for different levels of CBD Although the three-way interaction among CA, fit, and CBD is significant, neither of the two conditional two-way interactions between CA and fit are significant (in the case of high CBD b = 11, t = 1 64, p = 10, α = 05, in the case of low CBD b = – 12, t = 1 59, p = 11, α = 10) Although the pattern of these results is consistent with our hypothesis (i e , there is a positive interaction between CA and fit for high CBD but not for low CBD), the lack of significance implies that we do not have sufficient evidence to accept the hypothesis Conversely, we find a significant two-way interaction between fit and CBD Consistent with previous research (Milberg, Park, and McCarthy 1997), this implies that the main effect of fit is significantly stronger when CBD is high than when CBD is low

The interaction between CSR and fit for different levels of CBD For high CBD, there is no significant interaction between CSR and fit (b = – 05, t = – 81, p = 42, α = 10) For low CBD, the interaction between CSR and fit is positive and significant (b = 24, t = 3 68, p = 00, α = 05) When we examine the conditional main effects that constitute the latter interaction, we observe that CSR has a significant, positive effect when fit is high (b = 61, t = 4 63, p = 00, α = 05) but not when fit is low (b = – 04, t = – 33, p = 74, α = 10) Figure 3 graphically displays this pattern of results Contrary to our hypothesis (H_2), the fit between the product and the corporate brand affects the influence of CSR associations on product attitudes but only when the corporate brand is not dominantly visible (i e , when it is used as an endorser)

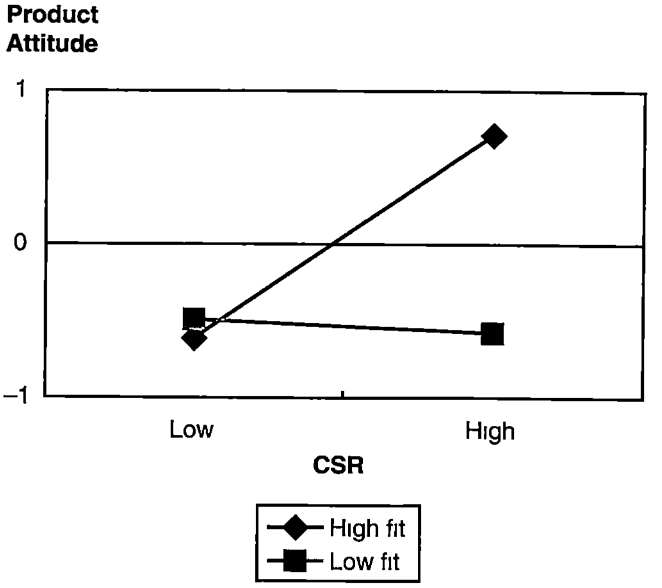
CBD and the Moderating Effect of Involvement

We also expected that CBD would influence the moderating effects of involvement (H_3 and H_4) The results show that there is a significant three-way interaction among CA, involvement, and CBD and among CSR, involvement, and CBD[6] Next, we analyze the conditional effects that constitute these interactions

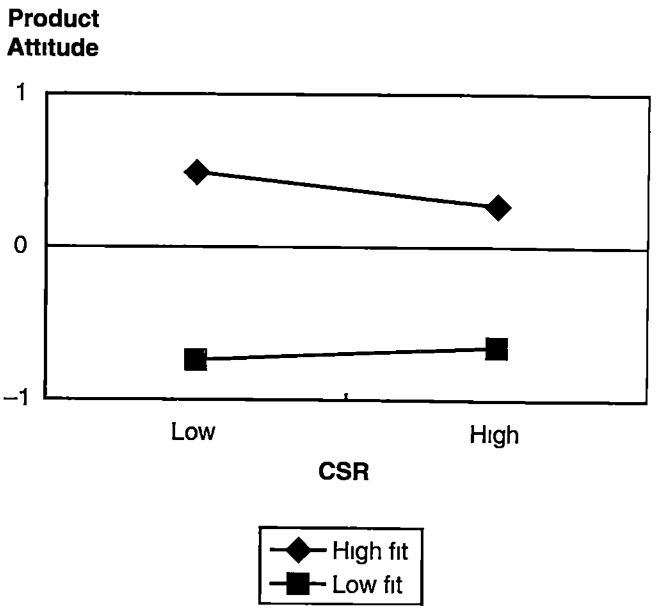
The interaction between CA and involvement for different levels of CBD Contrary to our expectation in H_3, for high CBD, there is no significant interaction between CA and involvement (b = – 10, t = –1 47, p = 14, α = 10) However, as we predicted, there is a significant, positive interaction between CA and involvement when CBD is low, which indicates that CA has a stronger influence on product attitudes when involvement is high than when involvement is low (b = 15, t = 2 37, p = 02 α = 05) When we examine the conditional effects that constitute this significant interaction, we observe that CA has a significant influence when involvement is high (b = 45, t = 3 29, p = 00, α =

FIGURE 3
Effect of CSR on Product Attitude for Different Levels of CBD and Fit

A: Low CBD



B: High CBD



Notes High CSR = one standard deviation above the mean, and low CSR = one standard deviation below the mean High fit = one standard deviation above the mean, medium fit = the mean, and low fit = one standard deviation below the mean

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[5] For purchase intention, the interaction among CSR, fit, and CBD is also significant (b = – 31, t = –2 11), but the interaction among CA, fit, and CBD is not (b = 26, t = 1 58) The pattern of conditional effects that constitutes the significant interaction is similar to that for product attitude

[6] For purchase intentions, neither of these two interactions were significant (for CA × involvement × CBD, b = – 05, t = – 33, for CSR × involvement × CBD, b = – 08, t = – 76)

05) but not when involvement is low (b = – 02, t = 12, p = 91, α = 10)

The interaction between CSR and involvement for different levels of CBD Contrary to our predictions in H_4, there is no significant interaction between CSR and involvement when CBD is high (b = 01, t = 11, p = 91, α = 10) Conversely, when CBD is low, there is a significant, negative interaction between CSR and involvement (b = – 15, t = –3 10, p = 00, α = 05) An examination of the conditional main effects that constitute this interaction shows that CSR has a significant effect when involvement is low (b = 52, t = 4 89, p = 00, α = 05) but not when involvement is high (b = 05, t = 39, p = 70, α = 10) Contrary to our hypothesis, this suggests that involvement has a significant effect on the influence of CSR associations only when the corporate brand is not dominantly visible on the advertisement (i e , when it is used as an endorser)

Discussion

The results of our study show that a company's corporate branding strategy affects the relationship between corporate associations and customer product attitudes When firms use a monolithic branding strategy (i e , when the corporate brand is dominantly visible), associations with CA have a strong influence, independent of fit and involvement In contrast, associations with CSR do not have a significant influence, again independent of fit and involvement When firms use an endorsed strategy (i e , when the corporate brand is not dominantly visible), the influence of CA associations is positively moderated by product involvement Conversely, in such a case, the influence of CSR associations is negatively moderated by involvement and positively moderated by fit

Theoretical Implications

Our results suggest that a company's corporate branding strategy is an important determinant of the mechanism through which CA and CSR associations influence customer product evaluations When the corporate brand is dominantly visible, CA associations appear to be highly salient cues that influence product evaluations, independent of perceived fit and product involvement In contrast, when the corporate brand is not dominantly visible, consumers appear to use CA associations only as a means to increase the reliability of their product evaluation In this case, CA associations influence product evaluations only when involvement is high but not when involvement is low In terms of the accessibility–diagnosticity framework (Alba, Hutchinson, and Lynch 1991, Feldman and Lynch 1988, Lynch, Marmorstein, and Weigold 1988), low CBD presumably decreases the accessibility of CA associations so that they are less likely to be used However, because the associations have a relatively high diagnosticity, they may still be used when people have a high diagnosticity threshold In such a case, CA associations can be used as a "backup" that may enhance consumer confidence in product judgments

The finding that the influence of CA is not moderated by involvement when the corporate brand is dominantly visible can be explained by assuming that in our study, CA associations have a relatively high diagnostic value for evaluating the products In such a case, these associations would have a high probability to be used in people's product evaluations, independent of the height of their diagnosticity threshold (i e , independent of their level of involvement) Similarly, the insignificance of the effect of perceived fit when CBD is high can be explained by a ceiling effect Because the mean level of perceived fit in our study was relatively high (5 45 on a seven-point scale), the diagnosticity of CA associations perhaps did not vary enough [7] An alternative explanation may be a lack of statistical power The three-way interaction among CA, fit, and CBD was significant and in the expected direction, whereas none of the conditional two-way interactions that constituted this interaction was significant This issue deserves attention in future empirical studies

However, with respect to the effect of CSR associations, the story is different When the corporate brand is dominantly visible, CSR does not appear to have any effect on product evaluations When the corporate brand is used as an endorser and therefore is not dominantly visible, CSR has an effect but only when fit is high or involvement is low That the influence of CSR increases in the case of low rather than of high involvement is consistent with our reasoning that CSR associations have only limited diagnostic value for product evaluations The significant, positive interaction between CSR and perceived fit is not consistent with our hypothesis and suggests that to some degree, our respondents observed the associations as directly applicable to product attributes However, this explanation must be substantiated with further research

An interesting but puzzling finding is that the moderating effects of fit and involvement on the influence of CSR associations occur when CBD is low rather than high A possible explanation for this finding is that when people evaluate a product's quality, the dominance of the corporate brand selectively increases the accessibility of CA associations while decreasing the accessibility of CSR associations Making the subsidiary brand dominant in product communications changes the role of the corporate brand from that of the driver of a product purchase to that of the endorser of the product (Aaker 1996) In the case of high CBD, the corporate brand acts as the driver, and CSR associations may become relatively inaccessible because the task of evaluating a product's quality induces people to focus on the brand's CA rather than its CSR Conversely, the endorser role does not primarily involve providing product information Therefore, when the corporate brand assumes the endorser role, it may induce people to focus on the parent company's other roles, such as its contributions to the community and its efforts to limit environmental damage The accessibility of CSR associations may then increase, which in turn induces people to use these associations when the associations are diagnostic or when people have a low diagnosticity threshold

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[7] We thank an anonymous reviewer for this suggestion

To test the validity of this reasoning, we conducted a small additional empirical study In this study, we investigated the effect of the CBD manipulation on the accessibility of CSR associations We asked 74 undergraduate business administration students to list their spontaneous associations with the corporate brand after being exposed to either an advertisement with high CBD or an advertisement with low CBD[8] Three independent judges coded the respondents' associations as CSR, CA, or other attributes We operationalized the accessibility of CSR associations as the presence or absence of CSR associations in a respondent's list of associations Most of the respondents' CSR associations addressed the quality of the company as an employer (e g , "good employer"), the recent publicity surrounding an increase in the parent company's top management compensation (e g , "scandals regarding top salaries"), and the organization's sponsorship of events (e g , "sport sponsorship") A log-linear model showed that significantly more people mentioned CSR associations when CBD was low than when CBD was high ($\lambda = -1\ 24$, $Z = -1\ 81$, $p =$ 07) This result supports our reasoning In contrast, CBD had no significant effect on the number of people who mentioned CA associations ($\lambda = -15$, $Z = -32$, $p = 75$) Finally, an analysis of variance with CBD as a between-subjects factor and the type of associations judged (CA or CSR) as a within-subjects factor showed that there was no significant difference between the CBD conditions in terms of the degree to which respondents viewed the company's CSR or CA as diagnostic for evaluating the product ($F =$ 52, $p =$ 47) However, consistent with our assumption, CA was perceived as significantly more diagnostic than CSR ($F = 102\ 21$, $p =$ 00) There was no significant interaction between CBD and the type of associations ($F =$ 54, $p =$ 47)

In conclusion, our results suggest that people use CA associations as a salient cue when the corporate brand is dominantly visible in product communications and only as a means to increase confidence when the corporate brand is not dominantly visible In contrast, people seem to use CSR associations as a salient cue primarily when the corporate brand is not dominantly visible

Managerial Implications

Our results have implications for managerial choices for the use of the corporate brand in product communications Specifically, the findings suggest that when a company wants to leverage its CA associations, a monolithic branding strategy (i e , a dominant visibility of the corporate brand) is most effective An endorsed strategy (i e , a low CBD) seems to be effective only when products are perceived as high-involvement products When a company wants to leverage associations with its CSR, an endorsed strategy seems to be the most effective This is especially the case when the product is perceived as fitting well with the corporate brand and is perceived as a low-involvement product

Limitations and Suggestions for Further Research

Although this study reports several important findings, it is not without limitations First, we assessed people's associations with a single parent company, which likely induced truncation of the measures of these variables This implies that care must be taken when generalizing the results in this study to situations in which people's corporate associations are extremely favorable or extremely unfavorable Further research should corroborate our findings by studying multiple organizations or by using experimental manipulations of corporate associations Second, we did not include measures of people's CA and CSR associations with the subsidiary brands in our study The reason for this choice was that the emphasis of the study was on associations with the corporate brand In addition, some of the subsidiary brands we used were relatively unknown to the public, thus, it seemed unlikely that most respondents would be able to answer questions about specific cognitions regarding these brands Third, we measured the independent and dependent variables in the same questionnaire, which potentially could inflate the reported relationships (e g , Feldman and Lynch 1988) We tried to address this by measuring the independent variables after measuring the dependents Still, it could be possible that respondents' answers on the dependent measures (i e , product responses) influenced their responses on the independent measures (i e , corporate associations)

In this study, we examined the role of CA and CSR associations on customer reactions A worthwhile issue for further research is the generalizability of our results to judgments of stakeholders other than customers For example, corporate brands are also used on the job market and the stock market To what degree do CA and CSR associations play a role in these contexts? What would be the influence of corporate branding strategies in these contexts? A priori, we expect that CSR associations play a larger role in the context of evaluating jobs and stocks because they are likely to be perceived as more diagnostic Therefore, in these cases, the role of CSR associations may be similar to the role of CA associations in our study

In addition, it would be worthwhile to replicate our findings in the context of other types of companies, industries, and products Both the diagnosticity and the accessibility of CA and CSR associations may be different in other contexts For example, recent research has shown that the diagnosticity of CA associations may be lower for products that involve a low degree of risk (Gurhan-Canli and Batra 2004) Similarly, CSR associations may be more diagnostic for products that are positioned as socially responsible, such as social/green investment funds or environmentally friendly products Furthermore, the accessibility of CA and CSR associations may depend on the familiarity of the parent company (which was moderate in our case) and its positioning strategy For highly familiar companies that position themselves on CA- and/or CSR-related attributes, it is likely that these types of associations will have larger overall effects on product evaluations but also that the moderating effects of CBD will be weaker because of the higher accessibility of these associations

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[8] The product they viewed was that of Subsidiary B for the retail banking market

Appendix
Measures, Descriptive Statistics, and Correlations

A: Measures

Scale	Items	Alpha
CA associations	*Products and services* •Do you think that [parent company] develops innovative products and services? •Do you think that [parent company] offers high-quality products? •Do you think that [parent company] offers products with a good price–quality ratio? *Workplace environment* •Do you think [parent company] is well managed? •Do you think that [parent company] employs talented people in comparison with competitors?	88
CSR associations	•Do you think that [parent company] supports good causes? •Do you think that [parent company] behaves responsibly regarding the environment?	85
Fit	•Do you think that this product fits the image of [parent company]? •Do you think that this is a logical product for [parent company] to market?	84
Involvement	•How essential do you find this type of products? (endpoints "essential" and "not essential") •How useful do you find this type of products? (endpoints "useful" and "useless")	85
Product attitude	*Quality* (endpoints "very low" and "very high") •How favorable is your judgment of this product? •What do you think about the quality of this product? •What do you think about the quality of this product in comparison with similar products? •How high do you think the returns of this product are for the customer? *Appeal* •Do you find this product sympathetic? •Do you find this product attractive? •Does this product give you a pleasant feeling? *Reliability* •Do you find this product reliable? •Does this product give you a safe feeling?	90
Purchase intention	•If you were planning to buy a product of this type, would you choose this product? •Would you purchase this product? •If a friend were looking for a product of this type, would you advise him or her to purchase this product?	81

B: Descriptive Statistics and Correlations

	Descriptive Statistics		Correlations				
	Mean	Standard Deviation	CA	CSR	Fit	Involvement	Product Attitude
Total Sample							
CA	5 12	93					
CSR	4 58	1 09	61**				
Fit	5 45	1 32	24**	15*			
Involvement	4 45	1 58	01	04	13*		
Product attitude	4 60	1 05	42**	33**	44**	26**	
Purchase intention	3 67	1 52	39**	33**	38**	27**	67**

Appendix
Continued

B: Descriptive Statistics and Correlations

	Descriptive Statistics		Correlations				
	Mean	Standard Deviation	CA	CSR	Fit	Involvement	Product Attitude
High CBD Condition							
CA	5 18	94					
CSR	4 63	1 14	62**				
Fit	5 44	1 32	30**	12			
Involvement	4 37	1 54	04	09	04		
Product attitude	4 64	1 04	45**	24**	54**	17*	
Purchase intention	3 79	1 58	47**	31**	41**	26**	64**
Low CBD Condition							
CA	5 05	92					
CSR	4 53	1 03	60**				
Fit	5 45	1 33	16	19*			
Involvement	4 54	1 63	-02	-03	22*		
Product attitude	4 54	1 07	38**	44**	33**	37**	
Purchase intention	3 53	1 44	27**	36**	34**	30**	72**

*$p < 05$
**$p < 01$

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The Performance Implications of Fit Among Business Strategy, Marketing Organization Structure, and Strategic Behavior

Adopting a contingency perspective, the authors present and test a fit-as-moderation model that posits that overall firm performance is influenced by how well the marketing organization's structural characteristics (i e , formalization, centralization, and specialization) and strategic behavioral emphases (i e , customer, competitor, innovation, and cost control) complement alternative business strategies (i e , prospector, analyzer, low-cost defender, and differentiated defender) Responses from 228 senior marketing managers provide support for the model and demonstrate that each strategy type requires different combinations of marketing organization structures and strategic behaviors for success

Firm performance is determined, at least in part, by how effectively and efficiently the firm's business strategy is implemented (Galbraith and Kazanjian 1986, Walker and Ruekert 1987) The process of implementing business strategies addresses how marketing activities are accomplished (Slater and Olson 2001, Walker and Ruekert 1987) How well these activities are accomplished is influenced by how they are organized (Mintzberg 1979, Vorhies and Morgan 2003, Weitz and Anderson 1981) and the specific behaviors the organization undertakes regarding customer orientation, competitor analysis, innovation, and cost management (e g , Chen 1996, Day and Nedungadi 1984, Deshpandé, Farley, and Webster 1993, Gatignon and Xuereb 1997, Porter 1980)

Although these influences on performance have been examined in isolation, they have not been studied in an integrated model of strategy implementation This study represents an important contribution to the understanding of strategy implementation in three regards First, we use an expanded business strategy framework as the foundation for this research on strategy implementation Second, we build on prior research (i e , Vorhies and Morgan 2003) that examines the impact of marketing organization structure and business strategy on firm performance within the confines of a specific industry (i e , trucking) by considering a much broader range of industries Third, we assess whether the explanatory power of the model is enhanced by the inclusion of four types of strategic behavior This approach provides insight into the specific characteristics of organization and behavior that are important to the implementation of each strategy type This should guide both general managers and marketing executives as they attempt to construct high performance organizations

The model we depict in Figure 1 illustrates the thesis of this study, that is, the relationship between marketing organization structure and strategic behavior (predictor variables) and firm performance (criterion variable) is moderated by the business strategy a firm adopts (moderator variable) Venkatraman (1989, p 424, see also Van de Ven and Drazin 1985, Venkatraman 1990, Venkatraman and Camillus 1984) describes this as the "fit as moderation" perspective Porter (1996, p 73) notes, "Strategic fit among many activities is fundamental not only to competitive advantage but also to the sustainability of that advantage It is harder for a rival to match an array of interlocked activities than it is merely to imitate a particular sales-force approach, match a process technology, or replicate a set of product features "

This contingency approach to strategy is rooted in general systems and open systems perspectives (Zeithaml, Varadarajan, and Zeithaml 1988) These perspectives view the organization as a social system composed of interdependent subsystems Coordination within these subsystems is accomplished through management policies and practices, which in turn interact with the environment to help achieve a set of goals or objectives (Luthans and Stewart 1977) Interactions within the organization and between the organization and the environment result in two complementary

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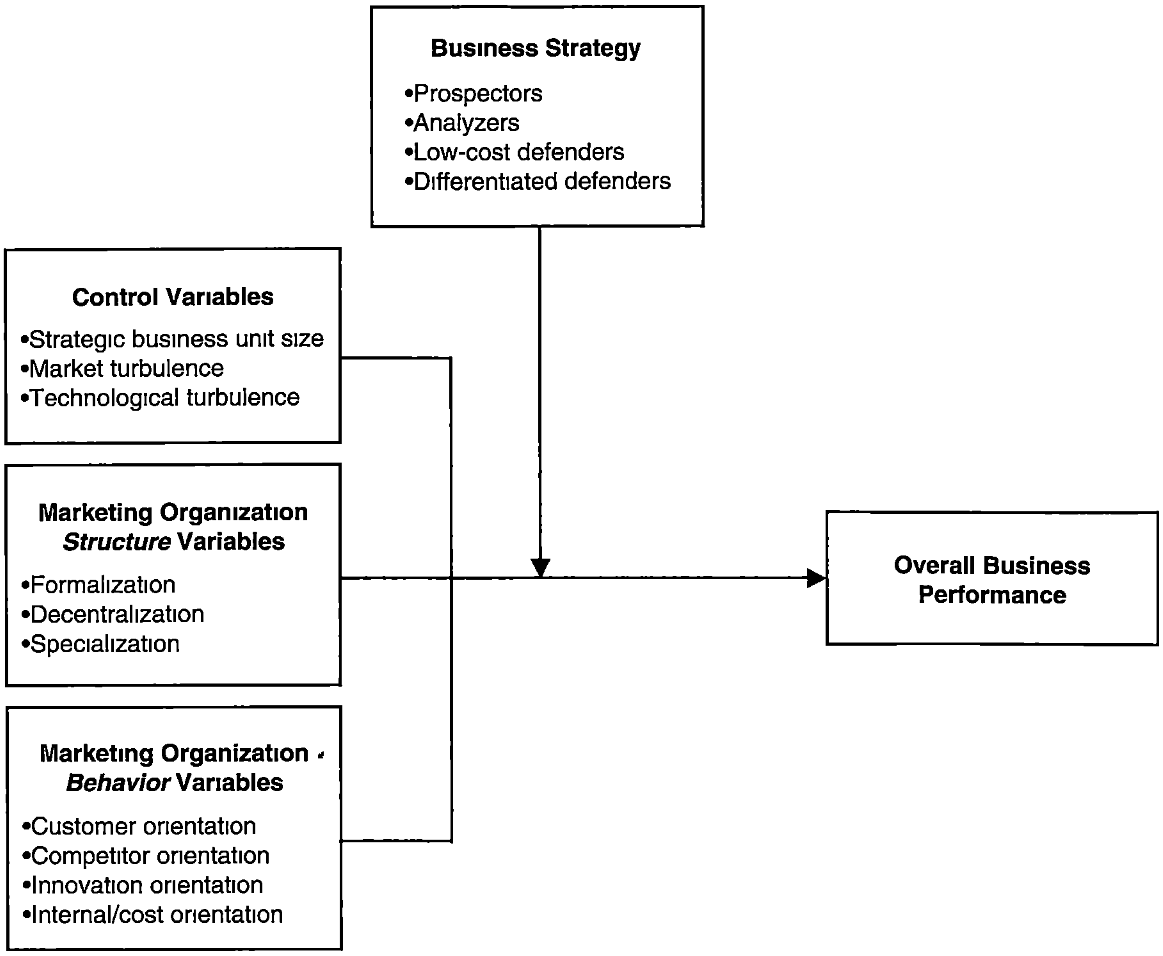
FIGURE 1
A Model of the Performance Implications of Fit Among Business Strategy, Marketing Organization Structure, and Strategic Behavior



Business Strategy
•Prospectors
•Analyzers
•Low-cost defenders
•Differentiated defenders
Control Variables
•Strategic business unit size
•Market turbulence
•Technological turbulence
Marketing Organization *Structure* Variables
•Formalization
•Decentralization
•Specialization
Marketing Organization *Behavior* Variables
•Customer orientation
•Competitor orientation
•Innovation orientation
•Internal/cost orientation
Overall Business Performance

open system characteristics that are central to the contingency approach adaptation and equifinality

The principle of adaptation holds that managers may adapt the organization's strategy to cope with changes in the external environment or the organization's structure and behavior to address the requirements of its strategy (Chakravarthy 1982) In the context of this study, the principle of adaptation suggests that marketing managers and personnel adopt specific structures and behaviors that best satisfy the unique demands of the firm as dictated by its overarching characteristic, its business strategy

The concept of equifinality holds that superior organizational performance can be achieved through a variety of different strategies (e g , Gresov and Drazin 1997, Hrebiniak and Joyce 1985, Katz and Kahn 1978, Venkatraman 1990) and that overall firm performance is less dependent on a specific strategy than on how well the firm implements the chosen strategy Thus, equifinality implies that strategy choice (Child 1972), or flexibility, is available to organization designers when they are creating organizations to achieve high performance Because organizational structure and organizational behavior are critical components of strategy implementation, it stands to reason that superior performance is contingent on how well the structure and behavior are aligned with the requirements of a specific strategy

We follow the lead of Vorhies and Morgan (2003) and Matsuno and Mentzer (2000) by examining the impact of marketing organization structure and strategic behavior on firm performance in the context of a specific business strategy Specifically, we build on these studies by simultaneously examining marketing organization structures and strategic behaviors By considering these two sets of independent variables at the same time, we attempt to develop a better understanding of both their individual and relative influences on overall firm performance while keeping with the basic model of strategy implementation (Galbraith and Kazanjian 1986)

We begin this study by reviewing the literature on business strategy, marketing organization structure, and strategic behavior We then propose a set of hypotheses that pertain to the impact of marketing organization structure and strategic behavior on overall firm performance among firms that have adopted a specific business strategy Next, we report the results of an empirical study that tests these hypotheses We conclude by discussing our findings and offering suggestions for managers and marketing scholars

Business Strategy

Business strategy refers to how firms compete in an industry or market (Varadarajan and Clark 1994, Walker and Ruekert 1987) The two dominant frameworks of business strategy (Hambrick 2003) are the Miles and Snow (1978) typology, which focuses on intended rate of product-market change, and the Porter (1980) typology, which focuses on customers and competitors

Miles and Snow (1978) develop a comprehensive framework that addresses the alternative ways that organizations define and approach their product-market domains (the entrepreneurial problem) and construct structures and processes (the administrative and technical problems) to achieve competitive advantage in those domains Miles and Snow identify four archetypes of how firms address these issues (1) "Prospectors" continuously attempt to locate and exploit new product and market opportunities, (2) "defenders" attempt to seal off a portion of the total market to create a stable set of products and customers, (3) "analyzers" occupy an intermediate position by cautiously following prospectors into new product-market domains while protecting a stable set of products and customers, and (4) "reactors" do not have a consistent response to the entrepreneurial problem In contrast, Porter (1980) proposes that business strategy should be viewed as a product of how the firm creates customer value compared with its competitors (i e , differentiation or low cost) and how it defines its scope of market coverage (i e , focused or marketwide)

Walker and Ruekert (1987) observe that though each of these strategy typologies has inherent strengths (i e , Porter's external focus and Miles and Snow's internal focus), each is also limited To address this, Walker and Ruekert propose a hybrid model that synthesizes the two foci in a typology that consists of prospectors, low-cost defenders, and differentiated defenders Although Walker and Ruekert's article has been frequently cited in the marketing and management literature, the distinctions between low-cost defenders and differentiated defenders have only recently been supported in empirical analysis (e g , Slater and Olson 2000, 2001) In this study, we build on this work by retaining Walker and Ruekert's three strategy types and adding the analyzer strategy type because many studies have demonstrated the validity of this strategy Because of low numbers and a lack of a proactive approach, we do not consider reactors

Organizational Structure

Organizational structures are established to coordinate work that has been divided into smaller tasks Mintzberg (1981, p 104) notes, "How that coordination is achieved—by whom and with what—dictates what the organization will look like" Although Mintzberg's focus is on the organization as a whole, his observations are appropriate for the marketing organization as well Indeed, the marketing discipline continues to increase in complexity and to create more sharply focused subdisciplines This expansion of marketing responsibilities has created greater divisions of labor within the modern marketing unit and greater coordination challenges

Walker and Ruekert (1987) hypothesize that firms that follow different generic business strategies adopt different structural designs Vorhies and Morgan (2003) study the relationships among marketing organization structure, business strategy, and performance in the trucking industry Both of these studies demonstrate that different marketing organization characteristics are more or less appropriate for different business strategies

Alternative forms of structures are typically defined by three structural constructs, which as Walker and Ruekert (1987 p 27) note "seem particularly important in shaping an organization's or department's performance" These three constructs are formalization, centralization, and specialization, and they are central to Mintzberg's (1979) analysis of organizational structures

Formalization

Formalization is the degree to which formal rules and procedures govern decisions and working relationships Rules and procedures provide a means for prescribing appropriate behaviors and addressing routine aspects of a problem Rules enable people to organize their activities to both their and the organization's benefit (Ullrich and Wieland 1980) Formal rules and procedures can lead to increased efficiency and lower administrative costs (Ruekert, Walker, and Roering 1985, Walker and Ruekert 1987), particularly in stable environments or those in which tasks are comparatively simple and/or repetitive (Olson, Walker, and Ruekert 1995) Burns and Stalker (1961) refer to firms with highly formal procedures as "mechanistic" and those with fewer formal procedures as "organic" Organic firms encourage horizontal and vertical communication and flexible roles Benefits of the organic form include rapid awareness of and response to competitive and market change, more effective information sharing, and reduced lag time between decision and action (Miles and Snow 1992)

Centralization

Centralization refers to whether decision authority is closely held by top managers or is delegated to middle- and lower-level managers Lines of communication and responsibilities are relatively clear in centralized organizations, and the route for final approval can be traveled quickly (Hage and Aiken 1970) Although fewer innovative ideas tend to be put forth in centralized organizations, implementation tends to be straightforward after the decision is made (Ullrich and Wieland 1980) This benefit is primarily realized in stable, noncomplex environments (Olson, Walker, and Ruekert 1995, Ruekert, Walker, and Roering 1985) In contrast, in a decentralized organization, a variety of views and ideas may emerge from different groups (e g , product management, sales) Because decision making is dispersed, it may take longer to make and implement a decision (Olson, Walker, and Ruekert 1995) In the long run, it is likely that the decentralized organization will produce more new ideas and more actual program changes than will a centralized organization (Ullrich and Wieland 1980) In addition, when a task is nonroutine and takes place in a complex environment, decentralization is likely to be more effective because it empowers managers who are close to the issue to make decisions and implement them rapidly (Ruekert, Walker, and Roering 1985) In the management literature, this construct is typically referred to as centralization, but we find that our statistical results are more readily interpretable when we consider it from the perspective of how decentralized a marketing organization is Ultimately, the two terms simply represent opposite ends of a single spectrum

Specialization

Specialization refers to the degree to which tasks and activities are divided in the organization and the degree to which workers have control in conducting those tasks Highly specialized organizations have a higher proportion of "specialists" who direct their efforts to a well-defined set of activities (Ruekert, Walker, and Roering 1985) Specialists are experts in their respective areas and, in complex environments, are typically given substantial authority to determine the best approach to complete their tasks (Mintzberg 1979) This expertise enables the organization to respond rapidly to changes in its environment (Walker and Ruekert 1987) Organizations that have a high proportion of marketing generalists typically are low in expertise in specific areas, such as marketing research or e-marketing By necessity, generalists must do additional "homework" before responding to change These organizations may be able to hold marketing costs down by reducing the expense of hiring specialists (Walker and Ruekert 1987)

Strategic Organizational Behavior

Organizational behavior refers to organizational members' work-related activities (e g , Ouchi 1977, Robbins 2002) According to Snell (1992), management attempts to influence organizational behavior through the use of control systems Control is any process that helps align employees' actions with the firm's interests (Snell 1992, Tannenbaum 1968) Control theory (Snell 1992) identifies three major categories of control mechanisms behavioral control (e g , establishing and monitoring of sets of actions), output control (e g , goal attainment measures), and input control (e g , training) When applied within an organizational context, control theory posits that management attempts to direct employee behavior to enhance the probability of desired outcomes As Snell notes (p 292), "Advocates of the behavioral perspective posit that different strategies require different behaviors" Snell also notes that this view of the link between strategy and behavior is useful because it provides a clear explanation of why behavior should be linked to strategy and because it posits a testable mediating construct (required behaviors)

In this study, we examine strategic behaviors that have the potential to create superior performance through enhancing the execution of business strategy (Gatignon and Xuereb 1997, Slater and Narver 1995) These are customer-oriented behaviors (Deshpandé, Farley, and Webster 1993), competitor-oriented behaviors (Armstrong and Collopy 1996, Chen 1996), innovation-oriented behaviors (Hurley and Hult 1998), and internal/cost-oriented behaviors (Porter 1980) It is important to understand that these strategic behaviors are not mutually exclusive and that it is common for firms to engage in multiple sets of behaviors simultaneously (e g , Day and Nedungadi 1994, Gatignon and Xuereb 1997, Slater and Narver 1994) Furthermore, we anticipate that different combinations of emphases will prove more or less beneficial for firms that adopt different business strategies

Customer-Oriented Behaviors

Firms with a strong customer orientation pursue competitive advantage by placing the highest priority on the creation and maintenance of customer value As such, these firms engage in the organizationwide development of and responsiveness to information about the expressed and unexpressed needs of both current and potential customers (Deshpandé, Farley, and Webster 1993, Kohli and Jaworski 1990, Narver and Slater 1990) Because of the constantly refined market-sensing and customer-relating capabilities of the customer-oriented firm, it should be well positioned to anticipate customer need evolution and to respond through the development of new customer value-focused capabilities and the addition of valuable products and services (Day 1994a, b)

Competitor-Oriented Behaviors

A different perspective on competitive advantage is simply to beat the competition (Day 1990) This orientation places a priority on the in-depth assessment of a set of targeted competitors This assessment focuses on targeted competitors' goals, strategies, offerings, resources, and capabilities (Day and Nedungadi 1994, Porter 1980) and on the organizationwide dissemination of the information generated from this assessment (Kohli and Jaworski 1990) The result is that managers develop competitor-oriented objectives rather than economic or customer-oriented objectives (Armstrong and Collopy 1996) The behavioral goal of the firm is to match, if not exceed, competitors' strengths

Innovation-Oriented Behaviors

Another perspective is that firms build and renew competitive advantage through radical or discontinuous innovations (Christensen and Bower 1996, Lynn, Morone, and Paulson 1996) An innovation orientation indicates that the firm not only is open to new ideas but also proactively pursues these ideas (Hurley and Hult 1998) in both its technical and administrative domains (Han, Kim, and Srivastava 1998) An innovation orientation encourages risk taking and enhances the likelihood of developing radically new products March (1991) argues that firms must be aware of the possibility that an innovation orientation may not allow for the follow-through that is necessary to reap the benefits of earlier innovations fully

Internal/Cost-Oriented Behaviors

Porter (1980) argues that there are two basic sources of competitive advantage The first is the differentiation advantage that a firm derives from the customer-, competitor-, or innovation-oriented behaviors that we have discussed The second is the cost advantage that a firm derives from internal orientation Internally oriented firms pursue efficiency in all parts of their value chain (Porter 1985) They attempt to reduce costs in primary activities, such as logistics, operations, and sales and marketing They also attempt to reduce costs in support activities, such as procurement, research and development (R&D), and administrative functions These firms pursue operational excellence that they can translate into higher sales through lower prices or higher margins (Treacy and Wiersema 1993) Whereas experimentation is the hallmark of firms with an innovation orientation, exploitation is the hallmark of internally oriented firms (March 1991) Exploitation enables the firm to realize improvements as it drives down the learning curve (Alberts 1989) However, overreliance on exploitation may stifle adaptation as market conditions change

Hypotheses

We now describe the structural and behavioral characteristics that should be most critical to the achievement of superior performance for each of the four business-level strategies

Prospectors

Many studies (e g , Conant, Mokwa, and Varadarajan 1990, McDaniel and Kolari 1987, McKee, Varadarajan, and Pride 1989, Slater and Olson 2001) have shown that, on average, prospectors are the most marketing oriented of the strategy types The key to success for prospectors is the development of innovative new products and entry into new markets Development of new products is a complex and frequently disorderly process that requires the input of numerous specialists, both technical and marketing These specialists require significant latitude in their decision-making authority to enhance creativity and hasten the development process Thus, we follow Walker and Ruekert's (1987, p 27) proposals that performance within prospector firms is enhanced when "(1) decision-making authority is extended down to or at least shared with lower-level managers within the department, (2) rigid rules and policies are supplanted by discretion and informal coordination mechanisms, and (3) more specialists with more detailed knowledge about particular techniques, products, or customers are incorporated within the department"

Discontinuous innovation may result from "outside-in" processes (i e , customer-oriented behaviors) or from "inside-out" processes (i e , purely R&D driven innovation) Thus, to develop new products, prospectors must observe customers' use of products or services in normal routines They must also work closely with lead users (i e , customers who recognize a need before the majority of the market) The lead user methodology motivates product developers to search outside the firm for insight, inspiration, models, and expertise Prospectors may conduct market experiments, learn from the results of those experiments, and modify their efforts on the basis of the new knowledge and insights (Lynn, Morone, and Paulson 1996)

In contrast, Olson, Walker, and Ruekert (1995) observe that R&D is frequently the dominant functional group associated with new product development, which suggests that an innovation orientation focused on technological breakthroughs is critical to the successful implementation of this business strategy In addition, when prospectors attempt to transform cutting-edge technologies into products or services, they may not recognize their (potential) competitors Thus, prospectors should be more attentive to customers and to innovation that continuously pushes product and market boundaries than to competitors Thus, we predict the following

> H_1 The highest-performing prospector firms have marketing organizations that are characterized by a high number of specialists who operate in a decentralized, informal organization and who place a greater emphasis on customer and innovation orientations

Analyzers

The key to success for analyzers is to bring out either improved or less expensive versions of products that prospectors introduced while defending core markets and products These dual demands create a structural conflict, and Vorhies and Morgan (2003) note that analyzer firms require sufficient marketing capabilities to perform complex tasks while minimizing resource commitments As fast followers, analyzers may require informal and decentralized structures that are staffed by marketing specialists to expedite the process of bringing their "new and improved" products to market and to avoid falling too far behind However, as territorial defenders, analyzers must also control product development and delivery costs while focusing on a stable base of existing customers This requires a more formal and centralized structure with fewer marketing specialists Ultimately, these conflicts appear to offset the pull toward structural extremes

Although Walker and Ruekert (1987) do not address the challenges that analyzers face, Miles and Snow (1978) provide considerable support for our position of balance To accommodate both dynamic and stable areas of operation, Miles and Snow state (pp 78–79) that analyzers will develop "[m]oderately centralized control systems" In addition, they note that to address the entrepreneurial problem, analyzers will create a "[h]ybrid domain that is both stable and changing," and to control costs and reap benefits, their "domain must be optimally balanced at all times between stability and flexibility"

Miles and Snow (1978, p 78) conclude that marketers in analyzer firms "must not only locate new product or market opportunities but also promote the sale of the organization's traditional products or services" In addition, "[t]he dual nature of the Analyzer's technology allows the organization to produce familiar products or services efficiently while keeping pace with developments engendered by Prospectors" (p 78) With respect to performance and structure, Miles and Snow observe (p 80), "The Analyzer's dual technological core means that the organization can never be completely efficient nor completely effective" The inherent tension in the analyzer's entrepreneurial, administrative, and technological challenges suggests that there is no clear structural solution for these firms Consistent with Miles and Snow's assessments, we anticipate that balance and adaptation will be the mode of successful analyzers However, we do not specifically predict that balance in marketing organization structure will be associated with superior performance, because at any given time, an individual analyzer may be operating in a way that is closer to that of either a defender or a prospector

Golder and Tellis (1993) suggest that followers can be as successful as early entrants if they learn about the structure and dynamics of markets from early entrants' efforts and limit their new product introductions to categories that have already shown promise in the marketplace To identify opportunities either in unattended market segments or in potential product improvements, analyzers must closely monitor customer reactions and competitors' activities, successes, and failures In other words, although customers are certainly important to analyzers, competitors' actions are equally, if not more, important Thus, we predict the following

> H_2 The highest-performing analyzer firms have marketing organizations whose behaviors are focused on customers and competitors

Low-Cost Defenders

The key to success for low-cost defenders is to provide quality products or services at the lowest overall cost The emphasis for low-cost defenders is on efficiency through standardized practices rather than on effectiveness that stems from flexibility As such, low-cost defenders are expected to rely on centralized decision making and formal marketing organization structures to ensure that risk and administrative expenses are held to a minimum (Ruekert, Walker, and Roering 1985, Walker and Ruekert 1987)

Slater and Olson (2001) find that successful low-cost defenders engage in comparatively low levels of marketing activities Walker and Ruekert (1987) predict that process engineering, production, distribution, and finance (rather than marketing) constitute the dominant functions in low-cost defender firms Nevertheless, low-cost defenders still require a base level of marketing, and the management of these actions is critical to the overall success of the firm Walker and Ruekert (1987) further predict that low-cost defenders have narrow and less technically sophisticated product lines than do firms pursuing other business strategies as well as low levels of advertising and sales promotions As such, Walker and Ruekert hypothesize (p 27) that "high levels of formalization and centralization together with low levels of specialization are likely to be associated with relatively efficient performance"

With costs as the driving focus behind this business strategy, it is logical that the most successful low-cost defenders emphasize cost control We expect that given the comparatively low levels of influence that the marketing organization has in low-cost defender firms, the internal focus on costs will overshadow the three external behavioral orientations However, if there is one external behavioral on which low-cost defenders focus, we believe that it will be on competitor orientation because competitors serve as a benchmark against which prices, costs, and performance can be compared Thus, we predict the following

> H_3 The highest-performing low-cost defender firms have marketing organizations that are characterized by few marketing specialists, formal and centralized decision-making processes, and a behavioral focus on internal operations, cost control, and competitors

Differentiated Defenders

The key to success for differentiated defenders is to provide premium service and/or high-quality products to select sets of customers who value and are willing to pay for them Because customer contact personnel are the employees who ultimately deliver service, it is imperative that these employees are able to make decisions about customer relations without needing to check with higher-level managers on every decision Thus, the best service is provided in decentralized organizations in which frontline employees have substantial discretion (cf Hartline and Ferrell 1996) However, a decentralized organization does not necessarily imply an informal organization We anticipate that a set of formal policies and rules will be established in differentiated defender firms to guide frontline marketers with respect to how to react to and address potential customer relation issues

Unlike their low-cost counterparts, differentiated defender firms focus on retaining customers through attention to superior service, product quality, or image Thus, the most successful differentiated defender firms will place a greater emphasis on customer-oriented behaviors However, this does not mean that differentiated defenders are oblivious to controlling costs or that they never engage in product or service innovation Rather, these are not typically the most critical elements of a differentiated defender strategy, and they may well run counter to the demands of their customer base Slater and Olson (2001) find that the highest-performing differentiated defender firms adopt a "value marketer" strategy (i e , high-quality, moderately innovative products that are sold through selective distribution channels but at lower price than highly innovative products) Thus, we predict the following

> H_4 The highest-performing differentiated defender firms have marketing departments that are characterized by a formal environment in which employees have considerable discretionary authority (i e , decentralized) and are primarily focused on customers

We summarize the hypothesized and observed relationships in Table 1

Research Design

Data Collection Process and the Study Sample

We focused this study on manufacturing and service firms operating in 20 different two-digit Standard Industrial Classification code industries (classification categories 20, 30, and 40) not only to provide a reasonably similar context for respondents but also to be broad enough for the results to be generalizable We purchased a commercial mailing list of 1200 senior marketing managers in firms with 500 or more employees operating in these industries In collecting the data, we followed Huber and Power's (1985) guidelines on how to obtain high-quality data from key informants A key informant design is common in studies of marketing organization (e g , Moorman and Rust 1999) and of market-

TABLE 1
Predicted (and Observed) Relationships Between Predictor Variables and Performance by Strategy Type

Organizational Variable	Prospectors	Analyzers	Low-Cost Defenders	Differentiated Defenders
Marketing Organization Structure				
Formalization	Negative (none)	—	Positive (none)	Positive (positive)
Decentralization	Positive (positive)	—	Negative (positive)	Positive (none)
Specialization	Positive (positive)	—	Negative (none)	—
Strategic Behavior				
Customer orientation	Positive (positive)	Positive (positive)	—	Positive (positive)
Competitor orientation	n.m.	Positive (positive)	Positive (positive)	—
Innovation orientation	Positive (positive)	(n.m.)	(n.m.)	—
Internal/cost orientation	—	—	Positive (positive)	—

Notes: n.m. = not meaningful because of net suppressor effect.

oriented behavior (e.g., Day and Nedungadi 1994; Gatignon and Xuereb 1997). We selected senior marketing managers as key informants because they should be knowledgeable about marketing organization structure, strategic behavior, business strategy, and overall firm performance.

We sent questionnaires to the 1200 senior marketing managers along with a personal letter that provided a brief introduction and a general explanation of the study's intent and a postage-paid return envelope. The questionnaire defined the meaning of business unit and asked each respondent to refer either to the largest strategic business unit in the organization or to the one they were most familiar with when answering the questions. Three weeks after the initial mailing, we sent a follow-up mailing with a duplicate copy of the questionnaire and a return envelope. We received 228 responses (prospectors: 63, analyzers: 45, low-cost defenders: 44, differentiated defenders: 63, reactors: 12); after accounting for undeliverables, this constituted a 20% response rate. Two-thirds of the respondents who reported their positions indicated that they held positions of director or vice president of marketing within their respective firms.

Although nonresponse bias is always a concern in survey research, the response rate is within the range of typical response rates for this type of study (e.g., Cannon and Perreault 1999; Gatignon and Xuereb 1997; Homburg, Workman, and Krohmer 1999; Menon, Bharadwaj, and Howell 1996). Furthermore, Armstrong and Overton (1977) find that late respondents more closely resemble nonrespondents than do early responders. Significant differences between late responders and early responders indicate the presence of nonresponse bias. We found no significant differences between early and late responders on key measures.

Description of the Measures

We developed a questionnaire to assess dimensions of market structure, marketing organization, strategic behavior, business strategy, and firm performance. We measured all constructs on seven-point Likert scales. We pretested the instrument with ten people who are involved with marketing strategy development or implementation for their firms. We asked them specifically to comment on the clarity of the items and their relevance. On the basis of their assessments, we modified the wording of some statements to improve their clarity.

We modified the following scales to address customer-oriented behavior (Narver, Slater, and MacLachlan 2004), competitor-oriented behavior (Narver and Slater 1990), innovation-oriented behavior (Hurley and Hult 1998), and internal/cost control–oriented behavior (Homburg, Workman, and Krohmer 1999; Kotha and Vadlamani 1995).

To control for the potential impact of market conditions on the relationships of interest, we also collected data on market structure. We measured two dimensions—market and technological turbulence—based on Jaworski and Kohli's (1993) work. For the marketing organization dimensions, we developed the scales used to assess formalization and specialization on the basis of Walker and Ruekert's (1987) discussion. We adapted the scale used to assess centralization from Menon and colleagues' (1999) work.

We assessed strategy type using the self-typing paragraph approach that is commonly used in strategic marketing research (e.g., McDaniel and Kolari 1987; McKee, Varadarajan, and Pride 1989; Vorhies and Morgan 2003). Several studies (Conant, Mokwa, and Varadarajan 1990; James and Hatten 1995; Shortell and Zajac 1990) have demonstrated that this is a valid measurement approach. We used the descriptions from Slater and Olson's (2000) work.

Performance should be viewed in the context of the firm's objectives, strategy, and market structure. We follow the lead of other marketing strategy researchers (e.g., Jaworski and Kohli 1993; Olson, Walker, and Ruekert 1995) and use a global measure of firm performance. We use overall firm performance (i.e., level to which a firm met expectations, exceeded major competitors, and satisfied top management) because of its relevance despite the nature of the contextual influences. As Ittner and Larcker (1997, p. 17) note, "overall perceived performance should encompass not only the organization's performance on the preceding dimensions (return on assets, return on sales, and sales growth), but also any other financial and nonfinancial goals that may be important to the organization." In a recent study, Morgan, Kaleka, and Katsikeas (2004) found a strong correlation between objective performance data and subjective assessments of performance by key informants, which supports the validity of key informant data. The scales that we used in the survey and their sources appear in the Appendix.

Measurement Purification

The results of the measurement analysis appear in Table 2, including means, standard deviations, average variances extracted, composite reliabilities, parameter estimates, and fit indexes Table 3 reports the correlations and shared variances for the constructs included in the study Overall, we found the ten reflective scales and their 41 purified items to be reliable and valid within the setting of this study

Following the data collection, we tested the scales for dimensionality, reliability, and validity We evaluated the psychometric properties in one confirmatory factor analysis (CFA) using LISREL 8 71 (Joreskog, Toit, and Toit 2000) We evaluated the model fits using a series of indexes that Gerbing and Anderson (1992) and Hu and Bentler (1999) suggest, including DELTA2 (Bollen 1989), relative noncentrality index (RNI, McDonald and Marsh 1990), comparative fit index (CFI, Bentler 1990), Tucker–Lewis index (Tucker and Lewis 1973), and root mean square error of approximation (RMSEA, Steiger and Lind 1980) Through the use of these fit indexes, the initial 49-item measurement model resulted in a reasonably good fit to the data (DELTA2 = 91, RNI = 91, CFI = 91, Tucker–Lewis = 91, and RMSEA = 08), but several items exhibited low R^2 Following Anderson and Gerbing's (1988) suggestions regarding content and statistical considerations, we removed eight items that performed poorly ($R^2 < 38$) The refined set of 41 items resulted in an improved fit (CFI = 93, for complete results, see Table 2) In addition, we found the 41 items to be reliable and valid when evaluated on the basis of each item's error variance, modification index, and residual covariation (e g , Fornell and Larcker 1981, Joreskog, Toit, and Toit 2000)

Within the CFA setting, we calculated composite reliability using the procedures that Fornell and Larcker (1981) outline on the basis of the work of Werts, Lin, and Joreskog (1974) The composite reliabilities for the ten scales ranged from 69 to 90, with factor loadings ranging from 48 to 97 ($p < 01$) (for measurement statistics, see Tables 2 and 3) We assessed discriminant validity using two different methods First, we assessed the average variance extracted for each construct and verified that it was higher than the corresponding shared variance for all possible pairs of constructs (Anderson and Gerbing 1988, Bagozzi and Yi 1988) The average variances extracted ranged from 48 to 71, and the shared variances ranged from 00 to 46 (see Tables 2 and 3)

Second, we tested discriminant validity with the test that Anderson (1987) and Bagozzi and Phillips (1982) suggest This test entailed analyzing all possible pairs of constructs in a series of two-factor CFA models We ran each model twice, once constraining the ϕ coefficient to unity and once freeing this parameter We performed a chi-square difference test on the nested models to verify that the chi-square was lower for the unconstrained models (Anderson and Gerbing 1988) The critical value ($\Delta\chi^2_{(\Delta\text{degree of freedom [d f]} = 1)} > 3\ 84$) was exceeded in all cases (the lowest $\Delta\chi^2_{(\Delta\text{d f} = 1)} = 59\ 12$ was found between customer and innovation orientations)

Before testing the hypotheses, we used a CFA approach to Harmon's one-factor test (McFarlin and Sweeney 1992, Sanchez and Brock 1996) to assess whether common method variance (CMV) constituted a problem in the testing The rationale for this test is that if CMV poses a serious threat to the analysis, a single latent factor would account for all manifest variables (Podsakoff and Organ 1986) A worse fit for the one-factor model would suggest that CMV does not pose a serious threat (Sanchez, Korbin, and Viscarra 1995) The one-factor model yielded a $\chi^2 = 3877\ 56$, d f = 779 (compared with $\chi^2 = 1567\ 65$, d f = 734 for the measurement model) The fit is considerably worse for the unidimensional model than for the measurement model, suggesting that common method bias is not a serious threat in the study

TABLE 2
Summary Statistics of the Measurement Analyses (N = 228)[a]

	Mean	Standard Deviation	Variance Extracted	Composite Reliability	Factor Loadings[a]
Market turbulence	4 49	1 27	53	69	59–84
Technological turbulence	4 63	1 29	56	83	68–83
Formalization	2 99	1 04	49	73	52–78
Decentralization	5 25	1 01	50	80	65–80
Specialization	3 23	1 21	53	77	67–78
Customer orientation	4 51	1 17	48	82	63–76
Competitor orientation	4 98	1 05	51	90	61–84
Innovation orientation	5 11	1 08	54	85	64–85
Internal/cost orientation	5 92	91	71	87	48–97
Performance	4 80	1 49	71	88	70–94

Fit Statistics

$\chi^2 = 1567\ 65$
d f = 734
DELTA2 = 94
RNI = 93
CFI = 93
RMSEA = 07

[a] All factor loadings are significant at the $p < 01$ level

TABLE 3
Correlation Matrix (N = 228)

	MT	TT	FORM	DECENT	SPEC	CUST	COMP	INNOV	ICO	PERF	SIZE
Market turbulence (MT)	1 00	31	00	00	01	05	02	05	01	01	00
Technological turbulence (TT)	56**	1 00	00	00	02	07	03	04	00	07	03
Formalization (FORM)	07	04	1 00	25	00	02	03	03	00	01	00
Decentralization (DECENT)	07	01	– 50**	1 00	01	11	18	21	02	14	04
Specialization (SPEC)	10	13*	02	– 09	1 00	03	01	05	00	07	03
Customer orientation (CUST)	22**	26**	– 13*	33**	18**	1 00	31	46	02	38	00
Competitor orientation (COMP)	14*	16*	– 18**	43**	08	56**	1 00	19	11	25	00
Innovation orientation (INNOV)	22**	21**	– 28*	46**	22**	68**	44**	1 00	04	20	04
Internal/cost orientation (ICO)	08	– 01	06	14*	– 06	13	33**	21**	1 00	02	01
Performance (PERF)	09	26**	– 11	37**	26**	62**	50**	45**	15*	1 00	00
Strategic business unit size (SIZE)	– 00	17	– 03	– 21	– 16	02	– 04	– 19	– 10	– 06	1 00

$^{*}p < 05$
$^{**}p < 01$
Notes We report correlations below the diagonal and shared variances above the diagonal The sample size is n = 228 for all correlations except for strategic business unit size, for which the sample size is n = 45

In addition, as Cohen and colleagues (2003) suggest, we conducted a power analysis to determine the probability of finding the sample R^2 to be greater than zero with $\alpha = .01$ for each strategy type. We achieved good to excellent statistical power in each subgroup. Thus, overall, we found the measures to be reliable and valid, and the sample sizes for each strategy type were sufficient to conduct the hypotheses testing.

Results

We tested the hypotheses using ordinary least squares regression within subgroups. Subgroup analysis is an appropriate technique to test for moderation when the moderator variable is categorical (Sharma, Durand, and Gur-Arie 1981). The method of hierarchical regression analysis enabled us to determine the relative impact of the structure and behavior variables on performance with respect to strategy type after controlling for market structure. This approach builds on previous research (Vorhies and Morgan 2003) on strategy and marketing organization structure to identify the incremental contribution of the behavioral orientations to overall firm performance. In the hierarchical regression analysis, we entered the control variables of market turbulence and technological turbulence in Step 1, formalization, centralization, and specialization in Step 2, and customer-, competitor-, innovation-, and internal/cost orientations in Step 3. We also conducted an overall analysis with strategy type as a control variable and size in revenues when available. Size was not a significant predictor of performance, which suggests that the subgroup analyses are not underspecified as a result of the exclusion of size as a predictor variable. Table 4 summarizes the results. For all models, the variance inflation factors were lower than 7.27, indicating that multicollinearity does not affect the weights of the explanatory variables in the model (Mason and Perreault 1991).

Prospectors

We found an adjusted $R^2 = .53$ and, as predicted, a positive effect of decentralization ($\beta = .28$, $p < .05$), specialization ($\beta = .29$, $p < .01$), customer orientation ($\beta = .27$, $p < .05$), and innovation orientation ($\beta = .27$, $p < .05$) on performance. The results also show a negative effect of competitor orientation ($\beta = -.30$, $p < .01$) on performance that we did not predict. Further analysis shows that the relationships among performance (Y), customer orientation (X_1), and competitor orientation (X_2) are an example of a net suppressor effect in which X_2 is positively correlated with Y but has a negative regression coefficient. The primary purpose of X_2 is to suppress the error variance in X_1 rather than explain much about Y (Cohen and Cohen 1975, p. 91). The appropriate conclusion is that competitor orientation has a positive but nonsignificant influence on prospector performance.

Formalization and internal/cost orientation were not significant. Thus, we conclude that H_1 is supported. The $\Delta R^2 = .32$ ($p < .01$) when we entered the control variables in Step 1 and the structure variables in Step 2. The $\Delta R^2 = .15$ ($p < .01$) when we entered the structure variables in Step 2 and the behavior variables in Step 3.

Analyzers

We found an adjusted $R^2 = .69$ and, as predicted, a positive effect of customer orientation ($\beta = .32$, $p < .05$) and competitor orientation ($\beta = .52$, $p < .01$) on performance. The results also show a negative effect of innovation orientation ($\beta = -.19$, $p < .10$) on performance that we did not predict. Further analysis shows that the relationships among performance (Y), customer orientation (X_1), and innovation orientation (X_2) are also the result of a net suppressor effect.

Formalization, decentralization, specialization, and internal/cost orientation were not significant. Thus, we conclude that H_2 is supported. The $\Delta R^2 = .19$ ($p < .01$) when we entered the control variables in Step 1 and the structure variables in Step 2. The $\Delta R^2 = .31$ ($p < .01$) when we entered the structure variables in Step 2 and the behavior variables in Step 3.

Low-Cost Defenders

We found an adjusted $R^2 = .78$ and, as predicted, a positive effect of internal/cost orientation ($\beta = .37$, $p < .01$) and competitor orientation ($\beta = .42$, $p < .05$) on performance. Counter to our prediction, the impact of decentralization was positive ($\beta = .33$, $p < .05$), and specialization, formalization, and competitor orientation had no significant effect on performance. The results also show a negative effect of innovation orientation ($\beta = -.33$, $p < .05$) on performance, which is due to a net suppressor effect. Customer orientation was not significant in the analysis. Thus, H_3 is partially supported. The $\Delta R^2 = .46$ ($p < .01$) when we entered the control variables in Step 1 and the structure variables in Step 2. The $\Delta R^2 = .33$ ($p < .01$) when we entered the structure variables in Step 2 and the behavior variables in Step 3.

Differentiated Defenders

We found an adjusted $R^2 = .27$ and, as predicted, a positive effect of customer orientation ($\beta = .45$, $p < .01$) and formalization ($\beta = .42$, $p < .05$) on performance. Contrary to our prediction, decentralization, specialization, competitor orientation, innovation orientation, internal/cost orientation, and the control variables were not significant. Thus, H_4 was partially supported. The ΔR^2 was not significant from Step 1 to Step 2, but it was significant ($\Delta R^2 = .24$, $p < .01$) when we entered the structure variables in Step 2 and the behavior variables in Step 3.

Discussion and Implications

Vorhies and Morgan (2003) demonstrate that firm performance within the trucking industry is influenced in part by how well the marketing organization structure variables are aligned with business strategy. Our study provides additional support for this finding and suggests that it is generalizable across a broader spectrum of industries. More important, our findings demonstrate that when behavioral orientations are considered in addition to marketing organizational structural elements, the explanatory power of the

TABLE 4
Alternative Business Strategies: Standardized Regression Results for Performance as the Criterion Variable

	Business Strategies			
Predictor Variables	**Prospectors (n = 63)**	**Analyzers (n = 45)**	**Low-Cost Defenders (n = 44)**	**Differentiated Defenders (n = 64)**
Step 1				
Market turbulence	27**	– 18	– 24	09
Technological turbulence	16	52*	13	18
R^2	13	25	04	07
Adjusted R^2	11	22	00	04
F-value	4 64***	7 01*	90	2 16
Step 2				
Market turbulence	20**	– 29***	– 35***	06
Technological turbulence	05	57*	20	15
Formalization	02	– 02	34***	17
Decentralization	35*	42*	70*	30**
Specialization	48*	24**	– 17	15
R^2	45	44	50	13
Adjusted R^2	40	37	43	06
F-value	9 34*	6 19*	7 52*	1 80
ΔR^2 (from Step 1 to 2)	32*	19*	46*	06
Step 3				
Market turbulence	22**	– 03	– 21***	– 17
Technological turbulence	– 00	21**	31*	09
Formalization	04	– 13	12	42***
Decentralization	28***	15	33***	26
Specialization	29*	05	– 01	– 01
Customer orientation	27***	32***	23	45*
Competitor orientation	– 30*	52*	42***	09
Innovation orientation	27***	– 19**	– 33***	18
Internal/cost orientation	00	– 01	37*	06
R^2	60	75	83	38
Adjusted R^2	53	69	78	27
F-value	8 86*	11 77*	17 96*	3 62*
ΔR^2 (from Step 2 to 3)	15*	31*	33*	24*

*p < 10

**p < 05

***p < 01

Notes Because we collected the data for this study using a cross-sectional design with key informant's self-report measures, CMV has the potential to affect relationships among the constructs We used the CMV testing technique that Netemeyer and colleagues (1997) suggest, and the results show the presence of some method bias, using a $\chi^2_{difference}$ test for each of the four strategy groups (p < 05) (cf Hewett and Bearden 2001, Netemeyer et al 1997) However, regarding the specific relationships, the results show only three significant differences when we estimate the "same-source" factor loadings freely versus when we set them to zero (1) The control variable of technological turbulence-to-performance path among low-cost defenders was attenuated to nonsignificance when we accounted for CMV, (2) the path between competitor orientation and performance among prospectors was stronger when we accounted for CMV, and (3) the path between innovation orientation and performance among analyzers was stronger when we accounted for CMV The strengths of the remaining significant hypothesized paths were consistent with our regression findings, even in the presence of CMV

model increases significantly across all strategy types We also find that behavioral orientation is contingent on strategy type

Although the regression results are largely in the predicted direction and are significant, they do not always provide clear direction to managers on how to implement the most effective structures or behavioral orientations For example, in the course of our analysis, we found (as predicted) that the only significant relationship between internal/cost orientation and firm performance was for low-cost defenders However, a *post hoc* analysis of variance revealed that internal/cost orientation is the behavioral variable with the highest overall mean score (5 92) when all responding firms are considered This finding is consistent with Porter's (1985) position that firms pursuing non-cost-based strategies must be able to maintain relative parity in their costs to achieve superior business performance. Thus, we would neither expect nor recommend that managers in firms following one of the other business strategies ignore issues of cost. Similarly, although the *post hoc* analysis demonstrated that customer orientation is the behavioral orientation with the lowest overall mean score (4.51), the regression results proved significant in the predicted direction for three of the four strategy types. Nevertheless, the highest-performing low-cost defenders also demonstrated a comparatively high mean score of 5.1 for customer orientation. Thus, the message to managers is not to ignore any of the orientations but rather to prioritize them and then place the greatest emphases and resources on those most aligned with the successful implementation of a firm's business strategy. We now consider this issue.

Profiles of Top Performers Compared to Regression Results

The principal managerial question that motivated this study is, What should a marketing organization look like with regard to structure and behavior? To address this issue more fully, we followed Vorhies and Morgan's (2003) lead by identifying the top third of firms (on the basis of performance) in each of the four categories of strategies and then determining mean scores for each of the three structural variables and the four behavioral variables (see Table 5). We note that because of suppressor effects, the profiles for three of the four strategy types represent a modestly different picture of the independent variables that are associated with successful performance than that which is represented by the regression results.

Prospectors

We characterize the structures of top-performing prospectors as highly informal and decentralized organizations. In other words, these organizations are flexible and adaptive, there are few formal procedures, and important decisions are made at relatively low levels. Decentralized decision making is possible largely because these firms employ a significantly higher proportion of professionals who have specialized knowledge than do any of the other strategic types.

Prospector marketing organizations have the highest levels of innovation orientation and customer orientation and the lowest levels of internal/cost orientation of any of the strategic groups, though it would be incorrect to characterize their internal/cost orientation as anything less than moderately high. Narver, Slater, and MacLachlan (2004) distinguish conceptually and empirically between the responsive and proactive dimensions of customer orientation. A responsive orientation focuses on current customers and their expressed needs. In contrast, a proactive orientation also focuses on discovering and satisfying the latent, unarticulated needs of customers through observation of customers' behavior in context to uncover new market opportunities, on working closely with lead users, on undertaking market experiments to discover future needs, and on cannibalizing sales of existing products. To achieve the highest level of customer orientation, prospectors should practice the behaviors that are inherent in a proactive orientation. Whereas the mean score for competitor orientation is relatively high, the regression and correlation analyses demonstrate that this is a suppressor variable. Thus, we caution prospectors against allocating resources to competitor analysis at the expense of customer analysis and linking.

Analyzers

We characterize the structures of high-performing analyzers as moderately informal and highly decentralized with a moderate number of marketing specialists. Because of the tension between the need for exploration and exploitation (March 1991) in analyzer organizations, a more formal set of policies or guidelines is necessary than it is in prospector organizations. However, as fast followers, rapid decision making requires delegation to the experts in the organization.

Members of the marketing organization demonstrated moderately high levels of customer, competitor, and innovation orientation. We believe that compared with prospectors, analyzers should place a greater emphasis on the responsive dimension of customer orientation, carefully evaluating customers' likes and dislikes regarding prospectors' offerings and introducing improved versions. The regression analysis demonstrates that innovation orientation is a suppressor variable. Thus, we suggest that analyzers place greater emphasis on imitation or incremental innova-

TABLE 5
Profiles of Highest-Performing Firms by Strategy Type: Mean Scores (Standard Deviations)

Organizational Variable	Prospectors (n = 20)	Analyzers (n = 14)	Low-Cost Defenders (n = 16)	Differentiated Defenders (n = 20)
Marketing Organization Structure Variables				
Formalization	2.5 (1.01)	3.1 (.91)	3.1 (.83)	2.9 (.65)
Decentralization	5.4 (.68)	5.8 (.64)	5.8 (.78)	5.5 (.49)
Specialization	4.8 (.95)	3.3 (1.71)	2.1 (.59)	3.5 (1.05)
Marketing Organization Behavior Variables				
Customer orientation	5.7 (.57)	5.4 (.63)	5.1 (1.02)	4.9 (.66)
Competitor orientation	5.5 (.80)	5.6 (.57)	6.0 (.84)	5.2 (.81)
Innovation orientation	6.1 (.55)	5.2 (.53)	5.5 (1.06)	5.4 (.60)
Internal/cost orientation	5.8 (1.01)	6.0 (.69)	6.7 (.34)	6.2 (.93)

tion than on radical innovation The mean score for internal/cost orientation indicates that a high level is appropriate even though the regression coefficient is not significant Consistent with our previous argument, this suggests that balance should be a goal for analyzer firms

Low-Cost Defenders

We characterize the structures of top-performing low-cost defenders as moderately informal and highly decentralized with the large majority of generalists workers Members of the marketing organization demonstrated the highest levels of internal/cost orientation and competitor orientation of the four strategic groups However, these firms demonstrated only moderately high levels of customer orientation, suggesting that the responsive form is most appropriate In contrast to the regression results, the profile of high-performing low-cost defenders suggests that a strong innovation orientation is appropriate We suggest that efforts at process innovation should dominate efforts at product innovation The highest-performing low-cost defenders appear to help control costs through their reliance on marketing generalists that are able to address multiple marketing tasks The data suggest that these generalists are given considerable latitude in determining the best ways to address these tasks It is also apparent that these firms expend considerable energy monitoring the competition

Differentiated Defenders

The structures of top-performing differentiated defenders are moderately informal with decentralized decision making and a moderate number of marketing specialists The significant difference between low-cost defenders and differentiated defenders with respect to marketing organizational structure is the differentiated defenders' significantly greater reliance on marketing specialists The most surprising finding in the examination of the profiles is that members of the marketing organization demonstrated the lowest levels (though still moderately high) of customer orientation and competitor orientation On the basis of the regression analysis, we anticipated that the highest-performing differentiated defenders would have high levels of reported customer orientation In contrast, these firms place the greatest emphasis on internal/cost orientation, only low-cost defenders are rated higher Nevertheless, the regression results indicate that higher levels of customer orientation are strongly associated with superior firm performance among this group

Limitations

Although this study uses a standard research design, it is not without limitations Having collected data from only companies with at least 500 or more employees, our ability to generalize the reported results to smaller companies is restricted However, it may be that within small companies, structural issues of formalization, decentralization, and specialization are simply not relevant when attempting to explain marketing effectiveness and/or firm performance Indeed, Mintzberg (1979) suggests that simple structures are characterized by centralization and informality because direct supervision is the key coordination mechanism in this type of organization In addition, we recognize that there are two other limitations inherent in studies of this type First, this study uses a cross-sectional design, thus, inferences about causality should not be made Second, we use a single respondent from each organization Although we find no evidence of common respondent bias, use of multiple raters may enhance the reliability of our measures (Huber and Power 1985)

Suggestions for Further Research

Despite the preceding limitations, we believe that our findings demonstrate that firms should tailor their marketing organization and strategic behaviors to complement the requirements of their business strategy However, it is also clear that the marketing discipline has much to do before it can claim to have thoroughly assessed its role in strategy implementation to the extent called for by Walker and Ruekert (1987, pp 18–19) They suggest examining marketing's role in the implementation of strategy at four levels within the corporation (1) corporate–business unit relationships, (2) interfunctional structure and processes, (3) marketing policies and processes, and (4) personal characteristics of marketing personnel

Of the four levels of analysis related to strategy implementation, only the third (i e , the role of marketing policies and processes) has received significant attention in the strategic marketing literature (e g , Conant, Mokwa, and Varadarajan 1990, Matsuno and Mentzer 2000, McDaniel and Kolari 1987, McKee, Varadarajan, and Pride 1989, Slater and Narver 1993, Slater and Olson 2000, 2001, Vorhies and Morgan 2003) Despite this body of research, there are many marketing–business strategy relationships that have not been adequately examined For example, the relative importance of identifying and targeting alternative market segments during the process of formulating alternative business strategies has yet to be examined Even within the context of this study, we cannot state which actions a marketing executive should take to create specific structures (e g , a high versus a moderately informal organization) or behaviors (e g , a high customer versus moderate customer orientation) Thus, we suggest that researchers should do more to understand the antecedents to the marketing practices and structures that predict performance This would provide useful guidance to managers and executives

Marketing's contribution to strategy at the corporate level is underresearched Marketing is often the tie that binds different business units in the corporate portfolio Yet the identification of which marketing assets or competencies should be leveraged and which should be maintained as unique to a specific business unit or well-defined group of business units remains largely unexplored in the marketing literature (Varadarajan and Clark 1994)

Interfunctional structures and processes address how work is coordinated among functions in the firm Although these structures and processes are studied extensively in the product development context (e g , Griffin and Hauser 1996, Olson, Walker, and Ruekert 1995, Olson et al 2001), interfunctional coordination has received scant attention in strategy implementation research This is surprising considering that both Miles and Snow (1978) and Walker and

Ruekert (1987) point out the different roles that separate functions play in different business strategies The identification of how coordination is achieved and how conflict is resolved between groups is central to understanding this

At the individual level, marketing managers typically play a key role in responding to opportunities and threats that a changing environment poses (Day 1984) Thus, how managers interpret a market situation directly affects the solutions they consider in their respective organizations, the resources they commit to particular projects, and the changes they make in products offered or markets served (White, Varadarajan, and Dacin 2003) A fruitful area for further research is how managers interpret and respond to information that pertains to a strategy type, there is a growing body of evidence that suggests that there are significant differences in the ways individual managers interpret and respond to a situation (e g , Mullins and Walker 1996) Ultimately, these all are important issues for marketing practitioners and academics to consider

Conclusion

There is now a substantial body of research that suggests that (1) successful business strategy implementation is required for superior performance, (2) marketing plays a crucial role in strategy implementation, and (3) the role of marketing in implementation is contingent on the specific strategy in use Thus, we are quite comfortable recommending that managers take the steps described in this and related articles to implement their business strategy At the same time, we encourage other scholars to continue the important work being done in this area

MEASUREMENT APPENDIX

Market Turbulence (based on Jaworski and Kohli 1993)

- In our business, customers' product preferences change quite a bit over time
- Our customers tend to look for new products or services to satisfy their needs

Technological Turbulence (based on Jaworski and Kohli 1993)

- The technological sophistication of products in this industry is changing rapidly
- Process technology in this industry is relatively stable[a]
- Technological change provides big opportunities in our industry
- Many new product ideas have been made possible by technological advances in our industry
- Technological developments in our industry are relatively minor

Formalization (based on Walker and Ruekert 1987)

- There is little action taken unless the decision fits with standard operating procedure
- Individuals in the marketing organization frequently refer to it as a "bureaucracy"
- If employees wish to make their own decisions, they are quickly referred to a policy manual

Decentralization (based on Menon et al. 1999)

- In this marketing organization, decisions tend to be made at a high level (R)[a]
- The individual decision maker has wide latitude in the choice of means to accomplish goals[a]
- Managers are allowed flexibility in getting work done
- A person who wants to make his own decision would quickly be discouraged (R)
- Even small matters are referred to someone higher in the marketing organization for a decision (R)
- Many important decisions are made locally rather than centrally[a]
- Middle- and lower-level managers have substantial autonomy

Specialization (based on Walker and Ruekert 1987)

- Our organization has a large number of "specialist" marketing employees who direct their efforts to a relatively narrowly defined set of activities
- Most of our employees are generalists who perform a wide variety of marketing tasks (R)
- We expect our marketing employees to be experts in their areas of responsibility

Customer Orientation (based on Narver, Slater, and MacLachlan 2004)

- We continuously try to discover additional needs of our customers of which they are unaware
- We incorporate solutions to unarticulated customer needs in our new products and services
- We brainstorm on how customers use our products and services
- We innovate even at the risk of making our own products obsolete
- We work closely with lead users who try to recognize customer needs months or even years before the majority of the market may recognize them

Competitor Orientation (based on Narver and Slater 1990; Porter 1980)

- Employees throughout the organization share information concerning competitor's activities
- We rapidly respond to competitive actions that threaten us
- Top management regularly discusses competitor's strengths and weaknesses
- We target customers where we have an opportunity for competitive advantage
- Our salespeople regularly collect information concerning competitor's activities
- We diagnose competitor's goals
- We track the performance of key competitors
- We identify the areas where the key competitors have succeeded or failed
- We evaluate the strengths and weaknesses of key competitors
- We look for market opportunities that do not threaten competitors[a]
- We attempt to identify competitors' assumptions about themselves or about our industry[a]

Innovation Orientation (based on Hurley and Hult 1998)

- Technical innovation based on research results is readily accepted
- Management actively seeks innovative ideas
- Innovation is readily accepted in program/project management

MEASUREMENT APPENDIX
Continued

- Individuals are penalized for new ideas that don't work (R)
- Innovation in our organization is perceived as too risky and is resisted (R)

Internal Operations/Cost Orientation (based on Homburg Workman, and Krohmer 1999, Kotha and Vadlamani 1995)

- Improving the operating efficiency of the business is a top priority
- We have a continuing overriding concern for operating cost reduction
- We continuously seek to improve production processes so that we can lower costs
- Achievement of economies of scale or scope are important elements of our strategy[a]
- We closely monitor the effectiveness of key business processes[a]

Overall Firm Performance (based on Jaworski and Kohli 1993)

- The overall performance of the business met expectations last year
- The overall performance of the business last year exceeded that of our major competitors
- Top management was very satisfied with the overall performance of the business last year

Strategy Types (based on Slater and Olson 2000)

- *Prospectors* These firms are frequently the first-to-market with new product or service concepts They do not hesitate to enter new market segments in which there appears to be an opportunity These firms concentrate on offering products that push performance boundaries Their proposition is an offer of the most innovative product, whether it is based on substantial performance improvement or cost reduction
- *Analyzers* These firms are seldom first-in with new products or services or first to enter emerging market segments However, by monitoring market activity, they can be early followers with a better targeting strategy, increased customer benefits, or lower total costs
- *Low-cost defenders* These firms attempt to maintain a relatively stable domain by aggressively protecting their product market position They rarely are at the forefront of product or service development, instead, they focus on producing goods or services as efficiently as possible In general, these firms focus on increasing share in existing markets by providing products at the best prices
- *Differentiated defenders* These firms attempt to maintain a relatively stable domain by aggressively protecting their product-market position They rarely are at the forefront of product or service development, instead, they focus on providing superior service and/or product quality Their prices are typically higher than the industry average
- *Reactors* These firms do not seem to have a consistent product-market strategy They primarily act in response to competitive or other market pressures in the short term

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[a] We deleted the indicator in the measurement purification process

Notes (R) = reverse-coded items

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Janice M. Payan & Richard G. McFarland

Decomposing Influence Strategies: Argument Structure and Dependence as Determinants of the Effectiveness of Influence Strategies in Gaining Channel Member Compliance

Although there is considerable research examining the effects of influence strategies on relational outcomes, research has been silent on the effectiveness of influence strategies in achieving the primary objective channel member compliance The authors develop a theoretical model that predicts that noncoercive influence strategies (Rationality, Recommendations, Information Exchange, and Requests) with an argument structure that contains more thorough content result in relatively greater levels of compliance The model further predicts that coercive influence strategies (Promises and Threats) result in compliance only when target dependence levels are high The authors develop a new influence strategy, Rationality, which represents a noncoercive strategy with a full argument structure In general, empirical findings support the theoretical model However, in contrast to expectations, the use of Recommendations had a negative effect on compliance *Post hoc* analysis revealed a significant interaction between trust and Recommendations on compliance, thus providing an explanation for this unexpected result When trust is low, Recommendation strategies are counterproductive The authors discuss implications of the findings and directions for further research

Influence strategies are compliance-gaining tactics that channel members use to achieve their desired actions from channel partners (Frazier and Summers 1984) Previous research on influence strategies has demonstrated their importance within channels of distribution This research has examined many important issues, such as the effect of influence strategies on channel conflict (Frazier and Rody 1991), interfirm agreements (Frazier and Summers 1984), satisfaction (Frazier, Gill, and Kale 1989, Scheer and Stern 1992), relationalism (Boyle et al 1992), and solidarity (Kim 2000) Researchers have also examined antecedents of influence strategies, including power (Boyle and Dwyer 1995, Venkatesh, Kohli, and Zaltman 1995) and dependence (Frazier, Gill, and Kale 1989, Frazier and Summers 1984, Gundlach and Cadotte 1994) This research is valuable, nevertheless, there is little, if any, existing research that examines the effectiveness of influence strategies in gaining channel member compliance Given that the purpose of influence strategies is to gain compliance, this is a critical gap in the literature As a result, there is little advice for channels managers about the effectiveness of the different influence strategies

This surprising gap in the literature may be explained by the common categorization of influence strategies as either coercive or noncoercive and a corresponding focus on the effects of coercion on relational outcomes With the recent focus on the importance of relationships in meeting channels objectives (Jap 1999, Morgan and Hunt 1994), it is understandable that channel researchers have focused on relational outcomes Unfortunately, the impact of these strategies in gaining compliance remains unknown For example, it is known that, in general, the use of noncoercive influence strategies results in positive relational outcomes and that the use of coercive influence strategies undermines relationships (e g , Boyle et al 1992, Frazier and Rody 1991), however, it is not adequately understood whether either achieves its primary objective, namely, compliance with the influence attempt

The purpose of this article is to develop a comprehensive theory that predicts the effectiveness of influence strategies in gaining channel member compliance We complement previous research on influence strategies and chan-

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nels relationships and fill the void regarding influence strategies and channel member compliance We do this by drawing on argument structure theory from the consumer behavior literature and on dependence theory from the marketing channels literature, from these, we develop our own theoretical framework on the compliance-gaining effectiveness of influence strategy

Our theoretical model takes an expanded view of influence strategies and predicts that the effectiveness of noncoercive influence strategies (i e , those that are meant to be persuasive) is based on the completeness of their argument structure and that coercive influence strategies (i e , those based on sanctions or rewards) are effective only when the target is highly dependent on the source of the influence Argument structure theory posits that the structural content of a persuasive argument is critically related to its effectiveness (Areni 2002, Munch, Boller, and Swasy 1993), whereas dependence theory suggests that the effectiveness of coercive strategies is based on the level of dependence of the target on the source

In the next section, we review the literature on channels influence strategies, argument structure theory, and dependence theory as the basis for our theoretical model Following that section, we develop hypotheses on the impact of these influence strategies on compliance Then, we discuss the research methods and findings and provide implications of these findings Finally, we note the limitations of the study and suggest future directions for research

Literature Review

Influence Strategies

Influence strategies are the communicated portion of influence attempts that one channel member uses to gain the compliance of another channel member Such strategies can be used for simple coordination purposes or for more serious matters such as major interfirm initiatives Influence strategies are classified as either coercive or noncoercive Coercive influence strategies motivate compliance on the basis of the influence mechanism of source-controlled rewards and punishments, whereas noncoercive influence strategies operate by changing the attitude of the target about the desirability of the intended behavior (Frazier and Summers 1984, 1986) The predicted outcomes of our conceptual model are based on these two influence mechanisms (which have been confirmed by two meta-analyses conducted on influence behavior in channels of distribution, Johnson, Koenig, and Brown 1985, Johnson et al 1993)

The underlying phenomenon of source-controlled consequences for desired behavior has been given different labels in channels research, such as contingent (John 1984, Scheer and Stern 1992), economic (Etgar 1978), direct outcome control (Kaulis, Spekman, and Bagozzi 1978), and mediated (Johnson, Koenig, and Brown 1985) influence mechanisms With this influence mechanism, the underlying action may or may not be desirable to the target, yet the action is undertaken to gain an additional reward or to avoid being punished With the noncoercive influence strategy, because attitude change must occur for compliance to take place, the more convincing the influence strategy is, the more likely compliance is to occur

Frazier and Summers (1984) were the first to specify the six most commonly studied influence strategies in marketing channels research Noncoercive influence strategies consist of Requests,[1] Information Exchange, and Recommendations, whereas coercive strategies consist of Promises, Threats, and Legalistic Pleas (Note that throughout the article, we capitalize influence strategies to distinguish them from their structural components For example, an influence strategy may or may not contain a request for a specific action, however, this structural component should not be confused with the influence strategy, which is conventionally referred to as Requests) Subsequent research has demonstrated that Legalistic Pleas are a special case of Threats (e g , Johnson et al 1993) Prestudy interviews with owners and managers of distribution firms confirmed that Legalistic Pleas are perceived as Threats but are rarely used (for definitions of the influence strategies we use in this study, see Table 1) As we subsequently discuss in more detail, on the basis of argument structure theory, it was necessary to add a new noncoercive strategy to this taxonomy We call this strategy Rationality[2]

Argument Structure Theory

Argument structure theory from consumer behavior research has demonstrated that advertising messages with more thorough argument structure have a stronger positive impact on consumer beliefs and message acceptance than do those with less thorough argument structure (Areni 2002, Areni and Lutz 1988, Munch, Boller, and Swasy 1993) Aristotle originally described the structure of an ideal argument as a syllogism, and Toulmin (1958) subsequently referred to it as argument structure Argumentation structure theory and rhetorical discourse present the ideal argument as a complete argument A complete argument is ideal because it is predicted to have the highest level of influence The three structural elements of a complete argument are claim, data, and warrant The claim is an assertion, a request, or a demand put forth for acceptance The data are information or facts that when linked to the claim offer

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[1] Because Requests is devoid of any additional information, such as a discussion about the desirability of the requested action or a discussion of rewards or punishments, the actual influence mechanism of Requests is based on the target's inference As one reviewer suggested, the target of influence may infer that there is a rational basis for Requests Alternatively, the target may infer that sanctions would be applied for noncompliance In this study, we accept the most common classification of requests as noncoercive and assume that the basis for compliance is on an inferred argument rather than on inferred sanctions Our assumption is supported by our prestudy interviews with owners and managers of distribution firms

[2] We developed the influence strategy of Rationality on the basis of an application and extension of argument structure theory However, it should be noted that Gundlach and Cadotte (1994) examine an equivalent influence strategy in their research, which they call "information persuasion "

TABLE 1
Influence Strategies, Definitions, and Influence Mechanisms

Influence Strategy	Definition	Underlying Influence Mechanism
Rationality	The source presents reasons accompanied with supportive information for a target to comply with a request	Changes in the perception of the desirability of compliance
Recommendations	The source predicts that the target will be more profitable if the target follows the source's suggestions	Changes in the perception of the desirability of compliance
Requests	The source simply states the actions it would like the target to take	Changes in the perception of the desirability of compliance
Information exchange	The source discusses general issues and procedures to try to alter the target's general perceptions without stating a request	Changes in the perception of the desirability of compliance
Threats	The source threatens the target with a future penalty if the target does not comply with a request	Source-controlled consequences
Promises	The source promises the target a reward if the target complies with a request	Source-controlled consequences

evidentiary support for the claim The warrant is the conclusion or linkage between the data and the claim An example of a complete argument in a compliance context would be as follows "I'd like you to promote the product only in these specific sales territories [claim] This five-year forecast indicates that the target market will continue to grow in these territories [evidence] Therefore, you would realize more profit if you promoted the product only in these territories [concluding statement or linkage between the evidence and the request]"

Frazier and Sheth (1985) suggest that influence strategies can be defined by whether or not two structural components are present Thus, their work is useful in aiding the theoretical application of argument structure theory to influence strategies They state that influence strategies can be weighted or unweighted Weighted strategies include a discussion about the benefits of the intended action beyond its potential for a future reward or a future punishment, whereas unweighted strategies do not discuss the benefits of the intended actions An example of an unweighted strategy might be a simple Request "We would like you to start shipping in full rather than partial truckloads" A weighted strategy would discuss the logical benefits to the target of the intended action "Your savings associated with shipping in full truckloads will more than offset any potential higher carry costs" Frazier and Sheth also state that strategies can be direct or indirect Direct strategies include an explicit request for the actions that the source of influence wants the target to take, whereas indirect strategies do not directly discuss the request (Again, note the difference between the Requests influence strategy and the request structural component) An example of an indirect strategy would be Information Exchange, in which the source might simply say, "Many of our dealers have had great success with our new just-in-time system" The intention of the strategy is to convince the channel member to implement the new just-in-time system, yet this is not explicitly stated Table 2 applies Frazier and Sheth's categories to each of Frazier and Summers' (1984) six influence strategies

TABLE 2
Frazier and Sheth's (1985) Framework Adapted to Frazier and Summers's (1984, 1986) Influence Strategies

Influence Strategies	Weighted	Direct
Noncoercive		
Requests	No	Yes
Information exchange	Yes	No
Recommendations	Yes	Yes
Coercive		
Threats/legalistic pleas	No	Yes
Promises	No	Yes

By decomposing influence strategies into their structural components, we can map argument structure theory onto the structure of influence strategies The direct request of a direct influence strategy is analogous to the claim in a complete argument, because a claim is an assertion, a request, or a demand put forth for acceptance In the context of channel compliance, a source issues a request in the hope that the target will agree that compliance with the request is acceptable In the language of Kelman and Hamilton (1989), the source communicates the specific response desired of the target (the request) in the hope that the target will perceive compliance as "prepotent" or the strongest alternative relative to other possible responses (including noncompliance) Thus, a request corresponds to a claim Further refinement is required when we map weighted strategies onto the structural elements of data and warrant A weighted strategy may contain the element of data/evidence (e g , in the case of Information Exchange), the element of a concluding statement/warrant (e g , in the case of Recommendations), or both the evidence and a concluding statement (e g , in the case of Rationality) Table 3 depicts each of the noncoercive influence strategies and denotes which of the three components of a complete argument are present in each strategy This table shows that none of the noncoercive influence strategies (i e , Requests, Information Exchange, and Recommendations) examined in prior studies have a complete argument structure Thus, it is necessary to add the Rationality strategy, which has complete argument structure

Dependence Theory

Most research on dependence in a marketing channels context draws on the theoretical work of Emerson (1962), who conceptualized dependence as the level of value that one firm can garner from another firm compared with the value it can garner from alternative firms in achieving its goals Typically, channel studies include dependence as a precursor to the use of influence strategies (Boyle et al 1992, Frazier and Rody 1991, Frazier and Summers 1986, Gundlach and Cadotte 1994) However, these studies do not elucidate how dependence and the use of influence strategies operate together to achieve compliance Kelman and Hamilton (1989) provide some theoretical direction They define dependence as the extent to which the target perceives the source as instrumental to the achievement of its goals, and they suggest that the target is dependent on the source to the extent that the target perceives that the source can facilitate or impede the target's goals This perception is formed by (1) the target's perception that the source has the capacity to affect the target's goal achievement, which might take the form of controlling resources or having the ability to apply certain sanctions, and (2) the target's perception that the source will indeed use the capacities at its disposal

We suggest that if the target perceives itself to be highly dependent on a source firm and the source attempts to communicate that it will apply sanctions in an influence attempt (i e , Threats or Promises), the effect on compliance will be amplified Keith, Jackson, and Crosby (1990, p 31) explain, "When [the target] has a large stake in a relationship (e g , a significant proportion of sales and profits accrue from the relationship), [the target] is more dependent on [the source] and is more likely to be tolerant of demands [e g , Threats] made by [the source] " Conversely, it is our position that with the use of noncoercive influence strategies (i e , Rationality, Recommendations, Information Exchange, and Requests), which are based on persuasion and not on coercion, dependence is not likely to be a major target concern (the use of persuasion gives the target room not to be persuaded)

Hypotheses

In the following section, we develop hypotheses based on a theoretical framework that suggests that noncoercive influence strategies are more or less effective on the basis of the thoroughness of their content and that coercive influence strategies result in compliance only when the target is highly dependent on the source We depict this theory in Figure 1

Relative Effectiveness of Noncoercive Influence Strategies on Compliance

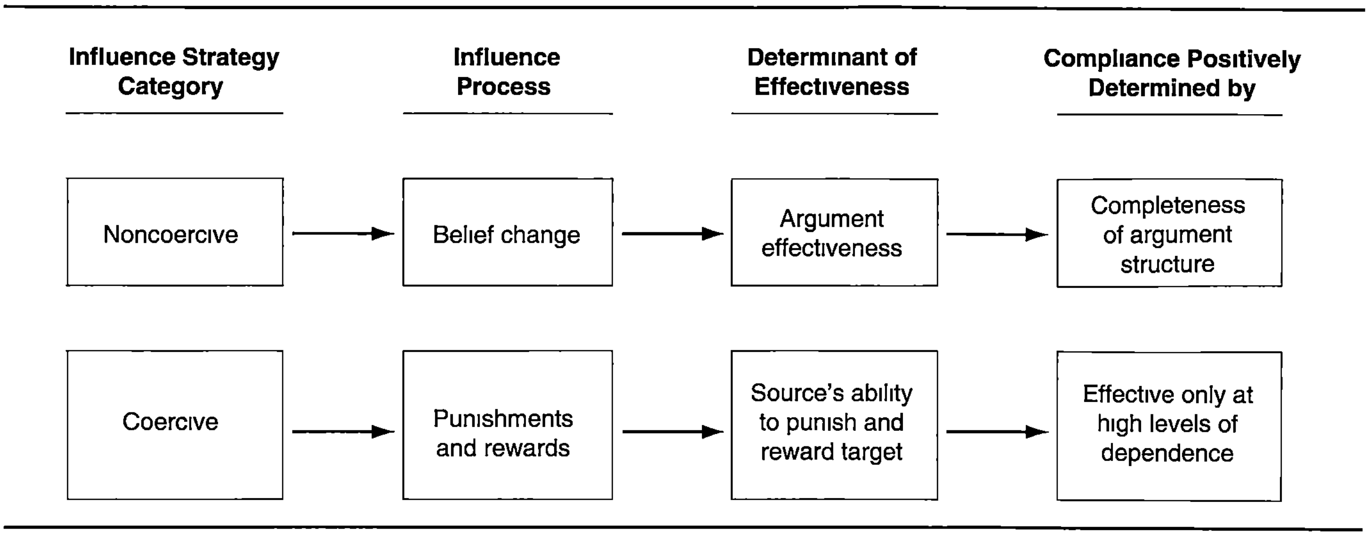
Frazier and Rody (1991) and Frazier and Summers (1984) state that noncoercive influence strategies rely primarily on changing the target's perception In other words, the source attempts to convince the target that a certain course of action is warranted, and in the process, the target's attitude about the attractiveness of taking that action changes Presumably, and consistent with attitude theory, when a target's attitude about the attractiveness of taking the action becomes positive, the target is more likely to act Raven and Kruglanski (1970) theorize that influence behavior that changes perceptions results in positive influence, and presumably compliance, because the accepted logic would become a part of the target's cognitive structure Together, this implies that noncoercive influence strategies, which are persuasive in nature, are likely to be positively associated with compliance However, drawing on argument structure theory, we maintain that the thoroughness of the argument associated with the influence strategy is related to its relative effect on compliance For example, an influence strategy that contains arguments that support a request may be more likely to result in compliance than an influence strategy that contains only a request without any communicated logical support for the request

Consistent with argument structure theory, we posit that the Rationality influence strategy, which has a more thorough argument structure than the other three noncoercive influence strategies (i e , Recommendations, Requests, and Information Exchange), has the strongest positive effect on compliance In other words, we posit that Recommendations, Requests, and Information Exchange have incomplete argument structure, and thus they may lead to a target's faulty inference about the missing portions Following this logic, Recommendations should have the next strongest

TABLE 3
Noncoercive Influence Strategy Argument Structure

		Weighted	
Influence Strategy	**Direct (Request explicitly stated)**	**Evidence (Data)**	**Concluding Statement (Warrant)**
Requests	Yes	No	No
Information exchange	No	Yes	No
Recommendation	Yes	No	Yes
Rationality	Yes	Yes	Yes

FIGURE 1
Theoretical Framework of Influence Strategy Effectiveness


Influence Strategy Category
Influence Process
Determinant of Effectiveness
Compliance Positively Determined by
Noncoercive
Belief change
Argument effectiveness
Completeness of argument structure
Coercive
Punishments and rewards
Source's ability to punish and reward target
Effective only at high levels of dependence

impact on compliance because two of the three structural components are present, and therefore fewer inferences are necessary with Recommendations than with Requests and Information Exchange influence strategies

Argument structure theory provides rationale for the relative effectiveness of the noncoercive influence strategies, additional support can be found in the concept of the quality of strong versus weak arguments that is included in the elaboration likelihood model that Petty and Cacioppo (1981) propose Empirical studies have demonstrated that the central processing of strong arguments results in higher levels of persuasion and compliance than that of weak arguments Although the specification of argument quality is not always precise across studies, Petty, Cacioppo, and Goldman (1981) suggest that a strong argument provides persuasive evidence (e g , statistics, data) in support of a claim Some researchers have suggested that argument quality resides primarily in the structure of the argument, that is, the elaboration likelihood model's strong argument quality consists of a complete argument structure, and weak argument quality consists of incomplete argument structure (Areni and Lutz 1988, Boller, Swasy, and Munch 1990) Thus, the elaboration likelihood model provides additional support for our contention that Rationality is a more effective influence strategy than Recommendations

Argument structure theory supports our prediction that Rationality and Recommendations are more effective than Requests or Information Exchange strategies because Rationality and Recommendations have more thorough argument structure than do Requests or Information Exchange, and more thorough or complete arguments are more effective That Recommendations is more effective than Requests is supported by several interpersonal empirical studies that demonstrate that a request in and of itself (whether processed centrally or peripherally) is less effective than if it is accompanied with supportive information (e g , Folkes 1985, Langer, Blank, and Chanowitz 1978) However, argument structure theory cannot guide us in determining whether Requests is more, less, or equally as effective as the Information Exchange strategy

Munch, Boller, and Swasy (1993) suggest that an argument devoid of both a claim and a warrant (analogous to Information Exchange) is even more likely to be interpreted inaccurately than an argument that consists solely of a claim (analogous to the Requests influence strategy) A lower likelihood of compliance with the use of Information Exchange versus Requests is due to Information Exchange being the most unfocused of the influence strategies The Information Exchange influence strategy lacks specificity as to what the source wants the target to do The specific action that the target wants the source to undertake may remain clouded, whereas with the Requests influence strategy, the desired action the source wants the target to take is explicitly noted Thus, Information Exchange is likely to result in more faulty inferences than Requests Therefore, we posit that Information Exchange is likely to be less effective than Requests and thus the least effective noncoercive influence strategy overall Stated formally

> H_1 (a) The Rationality influence strategy has a stronger positive influence on compliance than do the other noncoercive influence strategies (b) Recommendations has the next strongest influence on compliance, followed by (c) Requests (d) Information Exchange is the least effective noncoercive influence strategy

Coercive Influence Strategies and Compliance

Influence strategies based on the influence mechanism of source-controlled consequence (i e , Threats and Promises) offer threats of future penalties for lack of compliance or promises of future incentives for compliance (Frazier and Summers 1986) A target of influence in a dyadic channels relationship is likely to comply with these coercive influence strategies only if the attainment of the rewards or the avoidance of penalties can be administered by the source of influence and only if the rewards or penalties are important to the target in achieving its desired goals "Dependence refers to a firm's need to maintain the business relationship in order to achieve desired goals" (Frazier 1984, p 69) If the target can leave the relationship easily or with few consequences (and obtain equivalent rewards or avoid equivalent penalties more cheaply elsewhere), dependence is low, and the impact of coercion is dulled (Dwyer, Schurr, and Oh 1987)

When the importance of a relationship is low, the value of complying with coercive influence strategies should logically be lower as well Firms stay in poor relationships only if there are no viable alternatives, that is, when dependence is high This suggests that at lower levels of dependence, the use of coercive influence strategies is ineffective The target of influence is likely to comply with coercive influence strategies only when it is forced to do so because of its dependence on the source of coercive influence strategies Thus

> H_2 There is a positive interaction between dependence and the coercive influence strategies of (a) Threats and (b) Promises on compliance

Method

Research Context and Sample

We obtained the names and addresses of 6049 owners and managers of distribution firms of specialty tools and fasteners in the United States (Standard Industrial Classification codes 5072-05 and 5072-13) Because it was likely that many of the people included in this list were not directly involved in channel management, it was necessary to screen them to ensure that the final sample included only key informants who were the primary decision makers in their firms and who were the most knowledgeable about their firm's interactions with suppliers We mailed prestamped return postcards that asked the owners and managers about their knowledge regarding the topics covered in the study A total of 1038 people, who constituted our sample of key informants, indicated that they were knowledgeable about the topics in the study These respondents were mailed a questionnaire and a return envelope In line with the survey methods that Dillman (2000) suggests, we sent a reminder postcard seven working days after the initial questionnaire mailings A total of 363 usable surveys were returned

As an additional competency check to ensure that our respondents were indeed key informants, we included two items in the survey as informant competency checks The two items asked (1) how much the informant knew about his or her firm's perspective on the study topics and (2) how much the informant knew about specific experiences with the source firm Of the informants, 99% had knowledge about their firm's perspective, and 98 2% had knowledge about experiences with the source firm Thus, we eliminated seven cases from the database for the purpose of testing the hypotheses, which left 356 usable survey responses for analysis

To check for nonresponse bias, we mailed 150 letters and prestamped return postcards to a random list of nonrespondents Of these postcards, 32% were returned We did not find any significant differences between respondents and nonrespondents In addition, in line with Armstrong and Overton's (1977) guidelines, we found no significant differences between early and late responders

Measures

For details of all scale items, see the Appendix Participants responded to five-point Likert-type scales for all variables The reliability for all scales exceeds the recommended cutoff criteria Cronbach's alpha > 70 (Nunnally 1978), composite reliability > 70 (Fornell and Larcker 1981), and variance extracted > 50 (Hair et al 1998) For summary statistics and the correlation matrix for all scales, see Table 4 We measured the scales for the influence strategies on the basis of the frequency of usage for each influence strategy over the past year The scales were anchored by 1 ("never") and 5 ("very often") We drew measures for Threats, Promises, Information Exchange, and Recommendations from Venkatesh, Kohli, and Zaltman's (1995) work and for Requests from Boyle and colleagues' (1992) work We based the Rationality items on Gundlach and Cadotte's (1994) information persuasion scale We made minor adjustments to the scales to conform to the context of interest

TABLE 4
Correlation Matrix and Summary Statistics

Variable	1	2	3	4	5	6	7	8
1 Rationality	1 00							
2 Recommendations	45	1 00						
3 Requests	23	00	1 00					
4 Information exchange	33	19	33	1 00				
5 Threats	-03	-09	12	03	1 00			
6 Promises	37	47	-04	17	06	1 00		
7 Dependence	18	-05	17	18	00	04	1 00	
8 Compliance	21	-07	20	13	09	04	43	1 00
Mean	2 73	2 96	2 52	2 21	2 01	2 82	3 25	3 27
Standard deviation	85	1 07	93	84	1 21	1 10	1 01	77
Composite trait reliability	80	91	83	79	95	90	78	88
Variance extracted	58	78	63	56	87	75	55	71

Notes Correlations greater than ± 11 are significant at $p <$ 05

On the basis of current research and consistent with our hypotheses, we used a measure of dependence that was designed to reflect the criticality/scarcity of the source of supply (Andaleeb 1996, Kumar, Scheer, and Steenkamp 1998) We used the target's perception of his or her dependence on the source because it is this perception, rather than the source's perception, that affects the target's compliance decision Kelman and Hamilton (1989) suggest that a target makes a quick "visceral" assessment of its dependence on the source as a precondition for compliance We adapted dependence items from Kumar, Scheer, and Steenkamp's (1998) work as a reflective measure This five-point Likert-type scale was anchored by 1 ("very strongly disagree") and 5 ("very strongly agree")

Compliance refers to the target acting in accordance with an influence attempt from the source We asked respondents to assess how frequently they complied with the influence strategies that the source used over the past year (i e , the same period of time that respondents provided information on influence strategy usage) These scales were anchored by 1 ("never") and 5 ("very often") We borrowed and modified the items from Hunt, Mentzer, and Danes's (1987) multi-item measure of compliance probability Whereas their scale measures the probability or intention to comply, we adapted the scales to reflect actual compliance rather than an estimate of the probability of future compliance (This distinction is important and is analogous to the distinction between a behavioral intention and actual behavior, which are often not highly correlated)

Before developing the pretest questionnaire, we conducted interviews with dealer principals and domain experts to ensure the development of appropriate measures We paid particular attention to the development of the compliance and Rationality measures Next, we pretested the questionnaire with 460 owners and managers of distribution firms of specialty tools and fasteners who we did not include in the final study We asked each owner or manager to respond to the questionnaire and to indicate any instructions or questions that they believed were confusing We received 126 responses, of which 107 were usable (a response rate of 23%) On the basis of these responses, we shortened the questionnaire and eliminated several open-ended questions At this stage, we determined that the questionnaire was ready for the final study

Because we are exploring the relative effectiveness of each influence strategy, it is imperative that our measures demonstrate discriminant validity and appropriate factor structure Therefore, we initially ran an exploratory factor analysis on the influence strategy measures On the basis of a baseline eigenvalue of 1 0, we arrived at a six-factor solution using oblique rotation As we show in Table 5, the six influence strategies have good factor structure

Next, we analyzed all measures in a single confirmatory factor analysis model using LISREL 8 54 (Joreskog and Sorbom 1996) Model fit exceeded the standard cutoffs for acceptable fit $\chi^2 = 336$, degrees of freedom = 224, root mean square error of approximation = 038, nonnormed fit index = 98, and comparative fit index = 98 Convergent validity is indicated when the path coefficients (loadings) for each latent-trait factor to their manifest indicators are statistically significant All items loaded significantly on their corresponding latent factors Using the procedure that Fornell and Larker (1981) recommend, we obtained discriminant validity for all pairs of measures To test for unidimensionality, we analyzed each construct as a one-factor scale, using confirmatory factor analysis (Gerbing and Anderson 1988) In each case, the single-factor model had an acceptable fit (i e , root mean square error of approxima-

TABLE 5
Exploratory Factor Analyses of the Influence Strategies

	Factors					
Items	**1**	**2**	**3**	**4**	**5**	**6**
Rationality 1	710					
Rationality 2	869					
Rationality 3	630					113
Recommendations 1		732				101
Recommendations 2		927				
Recommendations 3		908				
Requests 1		−119	689			
Requests 2			837			
Requests 3			822			
Information exchange 1	160			615		
Information exchange 2				853		
Information exchange 3				756		
Threats 1					920	
Threats 2					985	
Threats 3					904	
Promises 1						829
Promises 2						838
Promises 3						902

Notes For clarity, we include only factor loading greater than ± 100 tion < 08, comparative fit index > 95), which indicates that the constructs are unidimensional

Results

We used multiple regression analysis to test the hypotheses (Cohen et al 2003) To avoid problems with multicollinearity, we mean-centered the exogenous variables, as Cohen and colleagues (2003) recommend The variance inflation factors indicate that multicollinearity is not a threat to the conclusions of the study To test the interaction hypotheses, we conducted an interaction regression However, there is some controversy in the literature regarding the interpretation of main effects in an interaction regression equation because the beta coefficients represent conditional relationships for the independent variables in the estimated model, whereas with a main effects–only model, the coefficients represent the effects of the independent variables on the dependent variable across all levels of the other independent variables (Jaccard, Turrisi, and Wan 1990) Thus, to test H_1, we conducted a main effects–only model, which we specify in Table 6 To test H_2, we specified a second interaction regression model, following Cohen and colleagues' (2003) guidelines The results of the two regression models appear in Table 6, and we specify them in the following equations The main effects model explains 24% of the variation in the dependent variable ($F_{(7, 348)} = 15\ 9, p < 000$), and the interaction model explains 28% of the variation in the dependent variable ($F_{(9, 346)} = 17\ 2, p < 000$) We specified the main effects model as follows

$$(1)\ \text{Compliance} = \alpha_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \varepsilon_1,$$

where

X_1 = Rationality,
X_2 = Recommendations,
X_3 = Requests,
X_4 = Information Exchange,
X_5 = Dependence,
X_6 = Threats, and
X_7 = Promises

The interaction model was specified as follows

$$(2)\ \text{Compliance} = \alpha_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_6X_5 + \beta_8X_7X_5 + \varepsilon_1$$

Relative Impact of the Noncoercive Influence Strategies on Compliance

The student t-test for each beta coefficient in the estimated regression model represents the probability that the coefficient is statistically different from zero and thus meaningful To test for the relative magnitude of the regression coefficients, we conducted statistical comparisons between each pair of beta coefficients in accordance with the test procedure for multiple regression analysis using SAS 8 02 (for a summary of the results of these tests, see Table 7)[3] Follow-

TABLE 6
Results of Multiple Regression Analyses (on the Dependent Variable "Compliance")

Independent Variable	Hypotheses	Standardized Coefficient	t-Value	Hypotheses Supported?
Main Effects Model				
Rationality	H_{1a}	224	3 80**	Yes
Recommendations	H_{1b}	– 166	–2 81**	No
Requests	H_{1c}	090	1 76*	Mixed support
Information exchange	H_{1d}	013	25	Mixed support
Dependence		391	8 18**	
Threats		045	95	
Promises		– 029	– 52	
Model Fit		Adjusted R^2 = 24%	$F_{(7, 348)} = 15\ 9$	
Interaction Effects Model				
Rationality		232	4 04**	
Recommendations		– 170	–2 94**	
Requests		083	1 66*	
Information exchange		000	00	
Dependence		418	8 92**	
Threats		083	1 79*	
Promises		– 019	– 34	
Threats × dependence	H_{2a}	100	2 19**	Yes
Promises × dependence	H_{2b}	028	61	No
Model Fit		Adjusted R^2 = 28%	$F_{(9, 346)} = 17\ 2$	

*$p < 05$
**$p < 01$

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[3] In accordance with the suggestion of a reviewer, we tested for the equivalence of the distributions for each measure The chi-

TABLE 7
Paired Tests for the Equivalence of the Standardized Beta Coefficients (Test of H_1)

Null Test Hypotheses	F-Statistic (degrees of freedom = 1, 346)	p-Value	Reject Null?	Conclusion	H_1 Supported?
$\beta_{\text{Rationality}} = \beta_{\text{Recommendations}}$	18 24	0001	Yes	$\beta_{\text{Rationality}} > \beta_{\text{Recommendations}}$	Yes
$\beta_{\text{Rationality}} = \beta_{\text{Requests}}$	4 05	0451	Yes	$\beta_{\text{Rationality}} > \beta_{\text{Requests}}$	Yes
$\beta_{\text{Rationality}} = \beta_{\text{Information exchange}}$	7 75	0056	Yes	$\beta_{\text{Rationality}} > \beta_{\text{Information exchange}}$	Yes
$\beta_{\text{Recommendations}} = \beta_{\text{Requests}}$	11 57	0007	Yes	$\beta_{\text{Recommendations}} < \beta_{\text{Requests}}$	No
$\beta_{\text{Recommendations}} = \beta_{\text{Information exchange}}$	18 24	0001	Yes	$\beta_{\text{Recommendations}} < \beta_{\text{Information exchange}}$	No
$\beta_{\text{Requests}} = \beta_{\text{Information exchange}}$	93	3366	No	$\beta_{\text{Requests}} = \beta_{\text{Information exchange}}$	No

ing this approach, H_{1a} is supported because Rationality has the largest positive impact on compliance (standardized coefficient = 224, t-value = 3 80, $p <$ 01) among the four noncoercive influence strategies, and we reject the null test hypotheses that the beta coefficient for Rationality is equal to the beta coefficients for Recommendations, Requests, and Information Exchange Contrary to expectations, Recommendations has a negative effect on compliance (standardized coefficient = – 166, t-value = –2 81, $p <$ 01), and not surprisingly given this negative value, the tests results we present in Table 7 indicate that the beta coefficient for Recommendations is significantly less than the other three (positive) beta coefficients Thus, H_{1b} is not supported Given this result, we conducted further analysis to determine whether any intervening factors could explain the negative relationship between Recommendations and compliance We discuss this analysis in the "*Post Hoc* Analysis" section Requests has the next strongest influence on compliance (standardized coefficient = 09, t-value = 1 76, $p <$ 05), followed by Information Exchange (standardized coefficient = 013, t-value = not significant) Although we have concluded that the effects of Requests and Information Exchange are significantly less than the effect of Rationality on compliance, on the basis of the test results, we cannot conclude that the difference between the beta coefficients of Requests and Information Exchange is significant (see Table 7) Thus, there is mixed support for H_{1c} and H_{1d} With the exception of Recommendations, there appears to be evidence that the argument completeness of noncoercive influence strategies is related to their effectiveness in gaining compliance At a minimum, we can conclude that the Rationality strategy, which has a complete argument structure, is significantly more effective than noncoercive influence strategies that have less complete argument structure

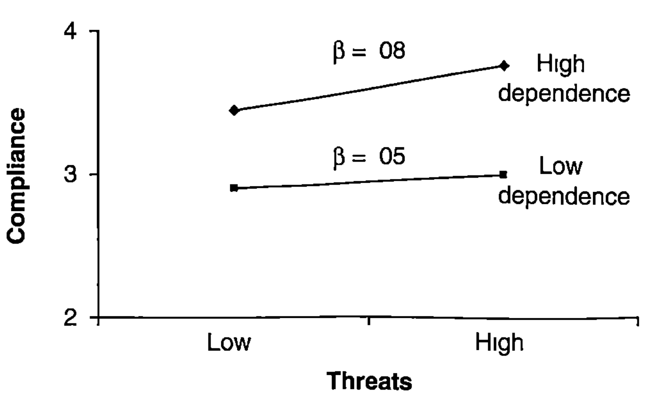
The Interaction Between Coercive Influence Strategies and Dependence on Compliance

In line with Cohen and colleagues' (2003) guidelines, we estimated the interaction effects between the coercive influence strategies and dependence on compliance using multiple regression analysis The interaction between Threats and dependence is significant (standardized coefficient = 10, t-value = 2 19, $p <$ 01), indicating that the effect of Threats on compliance varied across levels of dependence We conducted simple slope tests to explore the form of the interaction (see Cohen et al 2003) This test involves estimating the slope of the relationship between Threats on compliance at high and low levels of dependence (i e , one standard deviation above for high and one standard deviation below for low) We plot the results using the unstandardized estimates and intercepts in Figure 2 (Cohen et al 2003) This analysis indicates that Threats has a positive impact on compliance when dependence is high (β = 08, t-value = 3 71, $p <$ 01) but is not significantly related to compliance when dependence levels are low (β = 05) Thus, H_{2a} is supported The interaction between Promises and dependence on compliance is not significant, thus, H_{2b} is not supported

Post Hoc *Analysis*

Generally accepted theory holds that the use of Recommendations should be positively related to relational outcomes, and most authors would assume that the use of Recommendations is also positively associated with compliance Yet we found that the use of Recommendations has a significant, negative impact on compliance On reviewing the literature further, we found that such results may not be as unexpected as most researchers in the field would traditionally assume Many published studies that have conducted empirical analyses with the Recommendations influence strategy have had unexpected results The first study largely

FIGURE 2
Threats × Dependence on Compliance Interaction



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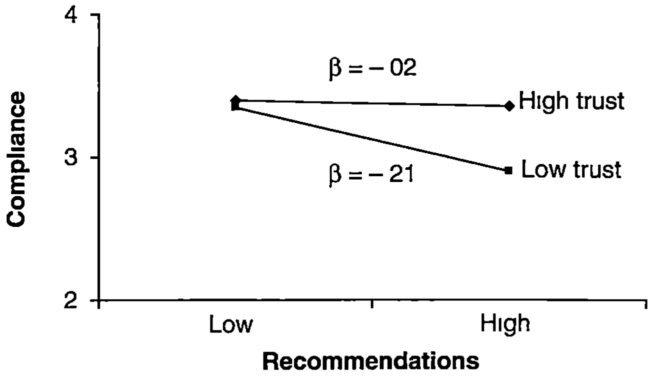
squared test for differences between all measure distributions was 14 65 with 8 degrees of freedom, which is not significant at a p-value of 05, indicating that the distributions are equivalent responsible for the subsequent examination of influence strategies also had unexpected results with Recommendations Frazier and Summers (1984) found that Recommendations correlated negatively with Information Exchange and positively with Promises, Threats, and Legalistic Pleas Furthermore, they found that Recommendations negatively correlated with interfirm agreements Frazier and Summers (1986) found that the use of Recommendations was negatively related to accommodative intentions Boyle and colleagues (1992) found that Recommendations had a negative correlation with relationalism Frazier and Rody (1991) found that Recommendations fell into the same group (factor) as Promises, Threats, and Legalistic Pleas for both supplier and dealer samples These findings indicate that an additional intervening variable may be causing these unexpected results

Our application of argument structure theory to influence strategies, the addition of the Rationality influence strategy to the influence strategy taxonomy, and Rationality's distinction from the Recommendations strategy provide a promising explanation for both our findings and prior unexpected empirical findings regarding the Recommendations influence strategy Unlike the Rationality influence strategy, in which a complete argument is given in support of the desired behavior, Recommendations provides a request and a concluding statement without evidence to support it Thus, it is incumbent on the target to trust that this evidence exists and that there is truth in the source's concluding statement, or the target must trust that the source is behaving benevolently toward the target in making its Recommendations Thus, there is a theoretical rationale that trust is potentially important for the successful use of Recommendations

To test this *post hoc* hypothesis, we added trust and the interaction between Recommendations and trust as exogenous variables to the interaction model we specified in Equation 2 The main effect of trust (standardized coefficient = 115, t-value = 2 14, $p <$ 01) and the interaction term (standardized coefficient = 089, t-value = 1 73, $p <$ 05) were significant We conducted simple slope tests to explore the form of the interaction, following the procedure that we discussed previously We plot the results using the unstandardized estimates and intercepts in Figure 3 This analysis indicates that the use of Recommendations is not significantly related to compliance when trust levels are high ($\beta = -02$) but that there is a negative impact on compliance when trust is low ($\beta = -21$, t-value = –3 56, $p <$ 01) Thus, our *post hoc* analysis suggests that the use of Recommendations is counterproductive when trust is low

FIGURE 3
Recommendations × Trust on Compliance Interaction



Although additional interactions were not predicted or indicated because of mixed findings (as in the case of Recommendations), we conducted further exploratory analyses for possible interactions to provide a richer examination of the data We did not find any significant interactions between dependence and the remaining influence strategies (other than the significant interaction reported between dependence and Threats) or between dependence and trust We found a significant interaction between trust and Recommendations (as we discussed previously) and between trust and Requests, however, trust did not significantly interact with the other influence strategies Given no a priori expectations for an interaction between trust and Requests, this finding should be viewed with caution

Discussion

This study advances Frazier and Sheth's (1985) and Frazier and Summers's (1984, 1986) work on influence strategies Argument structure theory holds that the more complete the argument structure of the communication that occurs in an influence attempt, the more effective is the communication A complete argument structure in rhetorical discourse (Toulmin 1958) consists of (1) a request, (2) evidence, and (3) a concluding statement that links the evidence with the request We categorize noncoercive influence strategies (i e , Recommendations, Information Exchange, and Requests) on the basis of the number of elements of a complete argument that the strategy contains Specifically, we note that Recommendations includes two elements, the request and a concluding statement that links the evidence and the request, Information Exchange contains only one element, evidence, and Requests contains only one element, the request As a result of the application of this theory, we add a fourth noncoercive influence strategy, Rationality, because it contains all three elements of a complete argument structure

In support of our theory, we find that use of the Rationality influence strategy is more likely to result in compliance than is the use of influence strategies that contain only one or two of these elements However, contrary to our expectations, we find that Recommendations has a negative effect on compliance (*post hoc* analysis found an interaction between Recommendations and trust) As we expected, Requests, which includes only one element of a complete argument, has a small yet positive impact on compliance Finally, we find that Information Exchange has the least (i e , not significant) association with compliance In summary, there is some support for the contention that the completeness of noncoercive influence strategies is related to their effectiveness in gaining compliance However, the pattern of results suggests that compliance effectiveness depends more on whether all three elements of a complete argument structure are present or not than on the number of elements (i e , two of three elements versus one of three elements) that make up a complete argument structure In other words, compliance effectiveness may be enhanced if all three elements of a complete structure are present, but if any of the three elements are not present, a firm may make inferences about the missing elements of the argument structure before deciding to comply or not to comply with another influence attempt Any inferences about the missing elements of a complete argument structure may be realistic or faulty inferences that are affected by other relationship variables (e g , lack of trust)

This study finds no main effects for Threats and Promises on compliance A stream of prior research that suggests that the use of Threats and Promises is damaging to interfirm relationships and our findings that Threats and Promises are ineffective might lead managers to avoid the use of these influence strategies altogether However, at least two conditions suggest that the use of these strategies are appropriate First, this study suggests the use of Threats is defensible when the target of influence is highly dependent on the source Second, Scheer and Stern (1992) suggest that the use of Threats and Promises is not damaging to interfirm relationships if compliance leads to positive target performance

Finally, we found that the use of Recommendations is negatively related to compliance, and we provided a *post hoc* explanation for this finding based on the significant interaction between Recommendations and trust As we discussed previously, a review of the literature found many studies in which the use of Recommendations resulted in unanticipated outcomes (often significant in the nonhypothesized direction) The application of argument structure theory to influence strategies has demonstrated that Recommendations has only two of the three structural components that constitute a complete argument Only with this theoretical advance can we explain these many unexpected previous findings Recommendations is, in essence, advice without evidentiary support Thus, when trust is low, it is likely that the target will view that advice as one-sided in the source's favor We believe that this finding is a major contribution, particularly in light of the many unexplained and unexpected results across prior studies

Several points regarding the role of dependence and the effectiveness of influence strategies in gaining compliance should be noted First, Gundlach and Cadotte (1994, p 525) suggest that "increasing dependence between exchange partners promotes cooperation rather than conflict" (and presumably compliance), and Frazier (1984) argues that dependence should be a direct antecedent of outcome variables We find that dependence has a significant main effect on compliance Indeed, our results indicate that dependence had a larger main effect on compliance than did any of the influence strategies The size of the direct, positive effect of dependence on compliance in this study and the significant dependence moderation of the effect of one influence strategy (Threats) on compliance (discussed subsequently) show that dependence is a strong determinant of compliance This provides further evidence that increasing dependence between channel members can be beneficial under some circumstances

Second, channel studies have found that the frequency of coercive strategy usage is inversely related to target dependence (e g , Frazier and Rody 1991, Frazier and Summers 1986) This may be due to the perception that the use of noncoercive influence strategies is ineffective under low target dependence Thus, the source might rely on coercive strategies more frequently as a perceived "last resort" However, in conditions of low target dependence, a relatively frequent use of coercive strategies may not lead to compliance Indeed, our results indicate that the use of coercive strategies under low dependence levels is ineffective Thus, both the literature and our findings indicate that when target dependence is low, the source is more likely to use coercive influence strategies but that these strategies are also more likely to be ineffective This issue has important managerial implications

In summary, this study makes several important contributions We emphasize that the effectiveness of channels' influence strategies in gaining compliance (their fundamental purpose) has not been the focus of prior published research For that reason, this study provides fruitful avenues for further research and useful guidelines for channel managers We presented a comprehensive theory that decomposes noncoercive influence strategies into three structural components and that argues that the relative effectiveness of a noncoercive influence strategy depends on the completeness of the influence strategy's argument structure There is evidence that influence strategies with more complete argument structure are more effective than influence strategies with less complete argument structure This theory, which is confirmed by our empirical findings, demonstrates the necessity for the inclusion of the Rationality influence strategy to the existing influence strategies taxonomy Our theory suggests and finds support for an interaction effect between coercive influence strategies and dependence Finally, the many counterintuitive empirical findings of the Recommendations influence strategy (including our preliminary findings of a negative direct effect for Recommendations on compliance) can be explained by a previously unidentified interaction between trust and Recommendations This result and our findings of the importance of dependence on compliance outcomes provide additional support for the importance of the cooperative-based governance of channel relationships

Limitations and Further Research

Because our sample consists of a single industry, the results may have limited generalizability However, this limitation should be somewhat tempered because every respondent represented a unique firm In addition, our study is based on cross-sectional data Several researchers have noted that there is a need for longitudinal studies to advance the understanding of the impact of cumulative interactions between firms in forming long-term relationships (e g , Geyskens, Steenkamp, and Kumar 1998, Jap 1999) Future longitudinal studies should also examine the sequential use of influence strategies It is possible that certain sequences of influence strategies have differential effects Furthermore, it is logical to assume that in at least some cases, the use of coercive strategies is a desperate attempt used only after other influence attempts have failed To the extent that this is true, cross-sectional studies may underrepresent the effectiveness of coercive influence strategies

As we have noted, the target must go through an inference-making process when a source uses Requests We suggest that the target infers that the source has a logical rationale for the request This point of view is consistent with the many studies that label Requests as noncoercive (see n 1) However, the target might also infer that sanctions would result for noncompliance Indeed, the latter assumption was the basis for Frazier and Summers's (1984) original conception of Requests Further research should attempt to operationalize Requests that are associated with assumed logical rationales and those that are based on coercion

Individual influence strategies should be examined in more detail For example, we examine the nature of some influence strategies on the basis of the thoroughness of their information The nature of the request is also likely to have an effect on compliance The more the source asks for (i e , the greater the imposition of the request), the less likely the target is to comply (Bagozzi, Yi, and Baumgartner 1990) In other words, if a manufacturer asks a dealer to double inventory levels, the dealer is less likely to comply than if the manufacturer makes a minor request, such as a temporary change in delivery schedules Mohr, Fisher, and Nevin (1996) note that the media by which an influence attempt is communicated (e g , face-to-face, telephone, e-mail, written) and other communications facets (e g , frequency, bidirectionality, formality) can have an effect on influence strategy outcomes Therefore, we suggest, as does Kim (2000), that there is a need to examine more thoroughly the specific details of influence strategies and the nature of communication in which they take place An episodic study design would be helpful for examining these topics

As one reviewer suggested, because our dependent measure for compliance is based on a global level and because influence strategies are measured according to the frequency of their use, it is possible that the dependent variable is underaccounting for the relative effectiveness of effective strategies that are used infrequently Similarly, strategies that are used frequently may be overaccounted for in terms of their relative effectiveness on the dependent measure We offer two solutions for addressing this issue in further research First, an episodic study design that examines a single influence attempt and a single compliance outcome would unambiguously and directly determine the effectiveness of each influence strategy on a strategy-by-strategy basis Second, more precise measures of compliance could be developed by asking respondents both how frequently an influence strategy has been used and how likely they would be to comply with that influence strategy if it were used

Note that as with prior channel studies, we examine the use of influence strategies on an individual basis rather than in conjunction with one another As Frazier (1999) suggests, examining the use of influence strategies in conjunction with one another is an important avenue for further research Certain combinations or mixes of influence strategies may yield different levels of effectiveness For example, an extension of our argument structure rationale for the effectiveness of influence strategies might suggest that a Threat or Promise used in conjunction with Rationality is more effective Threats and Promises do not include a rational argument on their own, and thus whether they are more effective when used with a rational argument should be investigated

Several final recommendations can be made in light of our findings First, the Rationality influence strategy should be included in further influence strategy research, given its unique factor structure and differential impact on compliance Second, we found that Recommendations has a negative impact on compliance when trust is low, thus, the relationship between noncoercive influence strategies with incomplete argument structure and trust should be investigated further Third, we found that Threats were effective only at high levels of dependence and that Promises were completely ineffective Because coercive influence strategies may be used more frequently in certain situations than in others (i e , when all other tactics have failed or when a target has initially agreed to comply and then has second thoughts) and because using coercive strategies more frequently may render them less effective, further research should examine the use of coercive influence strategies on a longitudinal basis

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APPENDIX
Scale Items, Reliabilities, and Item Loadings

Rationality ($\alpha =$ 80)[a]

1 Made a case based on sharing specific information or data that your firm should comply (79)
2 Made a case based on sharing market research related to their request that you should comply (74)
3 Made a case based on past experience with similar issues that you should comply (75)

Recommendations ($\alpha =$ 91)[a]

1 Provided a picture of the anticipated positive impact to your firm that his or her recommended course of action will have (83)
2 Predicted positive consequences from the environment (e g , that your firm would be more profitable) if you complied with their request (95)
3 Suggested you would be more successful financially if you followed their advice (86)

Requests ($\alpha =$ 83)[a]

1 Asked you to accept new ideas without specifying rewards or penalties (71)
2 Inquired if you would be willing to comply with a request without mention of rewards or penalties (81)
3 Shared a desire for your firm to make specific changes without incentives (85)

APPENDIX
Continued

Information Exchange (α = 79)[a]
1 Provided you with market information without indicating what your firm should do (63)
2 Presented competitive information without indicating any action that needed to be taken (82)
3 Shared information about his or her company without explanation about his or her objective(s) in sharing this information (78)

Threats (α = 95)[a]
1 Indicated that there would be a penalty for noncompliance (92)
2 Threatened to discontinue specific benefits for noncompliance (97)
3 Stated that your firm would lose preferential status for noncompliance (91)

Promises (α = 90)[a]
1 Offered an incentive for compliance with their request (85)
2 Promised your firm a reward for your firm's cooperation (85)
3 Indicated how they would reward your firm's conformance with a request (90)

Dependence (α = 78)[b]
1 The work we do with this supplier is very important to our success (76)
2 There are few firms that could provide us with comparable output to what we obtain from this supplier (75)
3 Our total costs of switching from this supplier to a competing firm would be costly (71)

Compliance (α = 84)[a]
1 We accommodate what this supplier would like for us to do (82)
2 When this supplier asks us to change, we adjust accordingly (80)
3 My firm accommodates the desires of this supplier (91)

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[a] We used a five-point Likert-type scale for these measures, anchored by 1 = "never" and 5 = "very often"
[b] We used a five-point Likert-type scale, anchored by 1 = "very strongly disagree" and 5 = "very strongly agree"
Notes α = Cronbach's alpha scale reliability We report standardized item loadings in parentheses following each item

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Daniel Corsten & Nirmalya Kumar

Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption

Collaborative manufacturer–retailer relationships based on efficient consumer response (ECR) have become ubiquitous over the past decade Yet academic studies of ECR adoption and its impact on marketing relationships are relatively scarce Inspired by the relational view of competitive advantage, the authors empirically investigate whether the extent to which suppliers of a major retailer adopt ECR has a beneficial impact on their outcomes The results demonstrate that whereas ECR adoption has a positive impact on supplier economic performance and capability development, it also generates greater perceptions of negative inequity on the part of the supplier However, retailer capabilities and supplier trust moderate some of these main effects The overall results are robust with respect to differences in supplier size as well as between branded and private-label suppliers

Over the past two decades, marketing theory and practice has embraced the idea of relationship marketing (e g , Dwyer, Schurr, and Oh 1987, Morgan and Hunt 1994) In contrast to the traditional transaction-based focus of market governance, the literature now exhorts firms to develop collaborative partnerships and relational governance (e g , Anderson and Weitz 1992, Ganesan 1994) Compared with the typical adversarial transactions that involve bidding procedures in which multiple suppliers compete against one another in an effort to drive down prices, collaborative relationships adopt a long-term perspective and include an ongoing process to lower acquisition and operating costs (Cannon and Homburg 2001, Kalwani and Narayandras 1995) Although collaborative relationships through joint efforts of the partners create unique value that neither partner can create independently, there is tension between maximizing such value and distributing it between the partners (Zajac and Olsen 1993) This makes collaborative relationships challenging to implement in practice, particularly with powerful parties

The challenge of developing collaborative marketing relationships is perhaps most apparent in the fast-moving consumer goods industry Although there are differences of opinion in the academic literature as to whether power has shifted from manufacturers to retailers (Ailawadi 2001), there is little doubt about the consolidation in the retail sector For example, in the United States, the ten largest retailers now account for 80% of the average manufacturer's business compared with approximately 30% a decade ago (Boyle 2003) Besides the resultant price pressure from large retailers, suppliers are finding it increasingly difficult to develop their marketing strategy in isolation of the particular retailer's strategy This has encouraged suppliers to develop closer relationships with major retailers in an attempt to change the latter's focus from purely price to reducing the total cost in the marketing channel and increasing value, this is a fundamental change in marketing strategy (Kumar 1996) The major industry initiative to help achieve this is called "efficient consumer response" (ECR)

ECR

The U S grocery retailers and branded manufacturers in the fast-moving consumer goods industry launched the ECR initiative in 1992 A study by Kurt Salmon Associates (1993), a retail management consultancy firm, estimated that streamlining the supply chain through the adoption of ECR would lead to a total savings of 10 8% of retail price, or $30 billion It was anticipated that manufacturers would receive 54% of these savings, and distributors and retailers would receive the remaining 46% (ECR Europe 1997)

Over time, ECR has become a comprehensive initiative comprising a dozen different ECR practices that are organized within three major areas of manufacturer–retailer collaboration (1) demand side management, or collaborative

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practices to stimulate consumer demand by promoting joint marketing and sales activities, (2) supply side management, or collaborative practices to optimize supply, with a focus on joint logistics and supply chain activities, and (3) enablers and integrators, or collaborative information technology and process improvement tools to support joint relational activities. Although collaboration in each of these areas could be pursued independently, in practice a comprehensive approach is promoted. Thus, we define ECR as a cooperative value-creation strategy whereby retailers and suppliers jointly implement collaborative business practices with the ultimate objective of fulfilling consumer wishes together, better, faster, and at less cost.

Despite the initial enthusiasm, a decade later, signs of skepticism seem to be gathering steam. In particular, suppliers believe that retailers have been the prime beneficiaries of ECR. There is a widespread belief among suppliers that ECR is just a convenient label for large and powerful retailers to continue doing what they have always been perceived as doing, namely, finding ways to pass costs back to the suppliers. To investigate this issue rigorously, we empirically assess whether and under what conditions suppliers benefit from collaborative ECR relationships with major retailers.

A review of the literature indicates surprisingly few empirical investigations of ECR adoption on performance. Related empirical studies of manufacturer–retailer relationships tend to fall into two categories. First, several investigations assess the impact of tighter manufacturer–retailer relationships on performance, as reflected in relational constructs such as interfirm coordination, trust, or mutual dependence (e.g., Heide and John 1992; Lusch and Brown 1996). Although greater trust, mutual interdependence, or interfirm coordination may be associated with ECR, these constructs are conceptually distinct from ECR, which promotes the joint implementation of collaborative processes and routines. Furthermore, these studies have typically examined supplier relationships with relatively small retailers (e.g., automobile, tire dealers) rather than with the large retailers that populate and often dominate suppliers in the packaged goods industry.

Second, three studies (Dhar, Hoch, and Kumar 2001; Gruen and Shah 2000; Stank, Crum, and Arango 1999) have examined the effects of the adoption of specific aspects of ECR, such as category management, on performance within the grocery industry. However, these studies do not assess the specific benefits for suppliers from ECR participation. In the face of large retailers that have the potential ability to dominate suppliers and thus appropriate any gains, whether ECR provides any benefits to suppliers remains an open question.

There are three objectives to this study. First, we propose a comprehensive scale to measure collaborative ECR relationships between suppliers and retailers. Second, we examine the effects of ECR adoption on supplier outcomes and the conditions under which such relationships with large retailers are likely to be beneficial to suppliers. Third, we attempt to determine whether the effects of collaborative ECR relationships are similar for large versus small manufacturers and branded versus private-label suppliers. Currently, we do not know what collaborative ECR relationships are, who they benefit, and under which conditions.

Theory and Research Hypotheses

Recently, Dyer and Singh (1998) proposed a "relational view of competitive advantage" based on the observation that a firm's critical resources may span firm boundaries. Dyer and Singh argue that such a relational view differs fundamentally from the two prominent perspectives that currently explain the sources of competitive advantage—industry structure (Porter 1980) and the resource-based view of the firm (Barney 1991)—and they propose four key sources of relational rents. According to Dyer and Singh, relational rents flow when alliance partners (1) invest in relation-specific assets, (2) develop interfirm knowledge-sharing routines, (3) use effective governance mechanisms, and (4) exploit complementary capabilities. Our conceptual model of the antecedents and consequences of suppliers' ECR adoption (see Figure 1) is inspired by this framework. In developing the model, we selected constructs that were both relevant to the practice of ECR and of theoretical interest to the relationship marketing literature, while ensuring coverage of all four sources of relational advantage.

Relation-specific assets help lower total value chain costs, enhance product differentiation, reduce operational problems, and accelerate product development cycles. Transaction-specific investments (e.g., Anderson and Weitz 1992; Heide and John 1988), cross-functional teams, and tailored incentive systems (e.g., Procter & Gamble's customer development team for Wal-Mart based in Bentonville) are most frequently mentioned as critical antecedents of supplier ECR adoption, and therefore we included these in our framework.

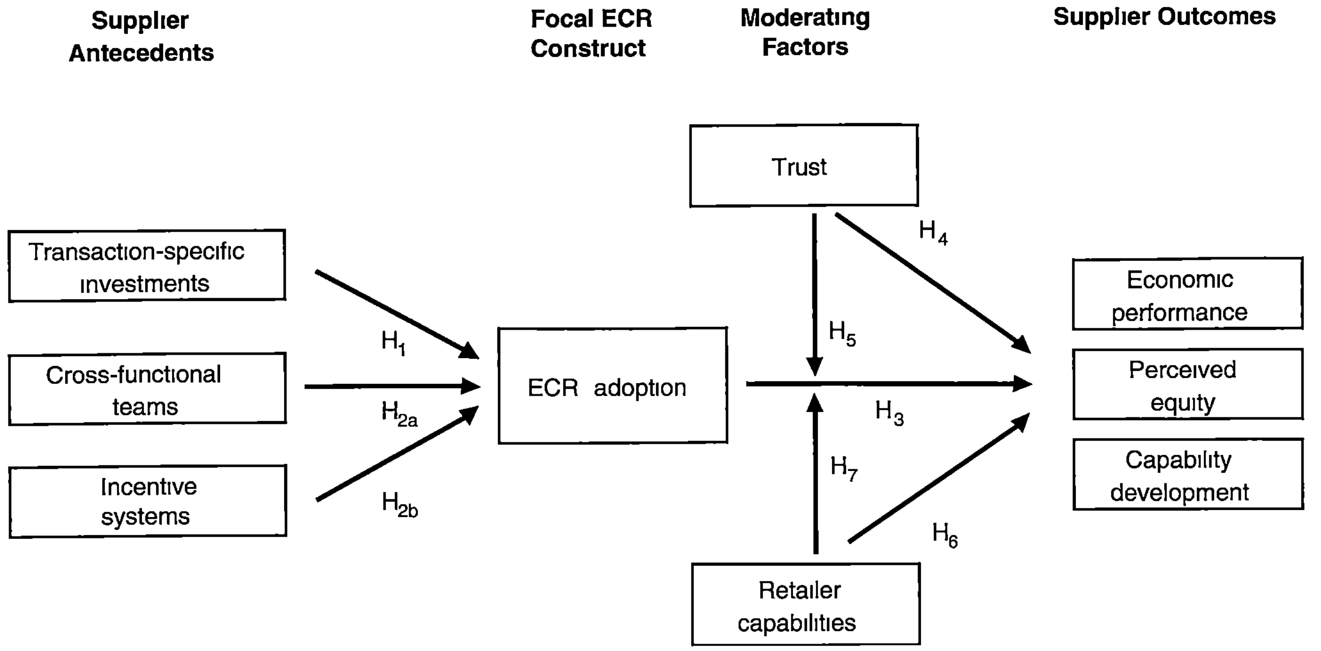
Interfirm knowledge-sharing routines facilitate information sharing and help alliance partners increase their partner-specific absorptive capacity (Cohen and Levinthal 1990; Lane and Lubatkin 1998). In its essence, ECR adoption is about sharing information and designing interfirm routines that facilitate interorganizational learning to enhance customer value.

Effective governance influences the willingness of alliance partners to engage in value-creation initiatives (Zajac and Olsen 1993). Self-enforcing safeguards (e.g., trust, economic hostages) are preferable to third-party safeguards (e.g., legal contracts) because they lower transaction costs and create incentives for value-creation initiatives (Telser 1980).

Complementary capabilities are the justification for interorganizational marketing relationships because they help partners create value that they cannot generate independently (Zajac and Olsen 1993). Thus, we included retailer capabilities in our framework as a moderator because ECR relationships with smarter retailers should result in more beneficial outcomes for suppliers.

In summary, given our focus on investigating supplier outcomes from ECR adoption, our model comprises four sets of factors: (1) the antecedent supplier factors that foster or discourage ECR adoption, (2) the focal ECR adoption construct, (3) the outcomes for the supplier from ECR adoption,

FIGURE 1
Model of ECR Adoption



and (4) the moderating factors of trust and retailer capabilities that either strengthen or weaken the relationships between ECR adoption and performance However, we note that to some extent, the relationships in Figure 1 between the antecedent constructs (i e , transaction-specific assets, cross-functional teams, and incentive systems) and ECR are reciprocal The logic for ordering the antecedents of ECR was based on three factors First, we conceptualize ECR as a process that gains over time, whereas incentive systems, investments, and cross-functional teams have more of an "on/off" character to them Second, our framework follows the structure–conduct–performance approach (Bain 1956) in which, as a process for managing the relationship, ECR is viewed as "conduct," whereas the antecedent variables are viewed more as "structure" Third, interviews with managers indicated that they believed that unless the three antecedents were in place, any ECR initiative was bound to fail

Antecedents of ECR Adoption

Transaction-specific investments are investments in a relationship that are of lower value when used in an alternative relationship (Heide and John 1988) Close relationships often emerge as a response to safeguard transaction-specific investments (Williamson 1985) Historically, and before the advent of ECR, suppliers of large and powerful retailers in particular have been forced to commit to physical, process, and human assets for dedicated production capacity, logistics capabilities, and market research to adapt to a retailer's assortment and replenishment concepts (Bloom and Perry 2001, Johnson 1999) Suppliers that have made investments in relation-specific structures with a retailer increase their collaborative conduct in relation to that of their partner to safeguard their previously unprotected dedicated assets (Bain 1956)

Effective ECR adoption requires that suppliers implement supportive organizational systems, such as cross-functional teams and ECR friendly incentive systems, before ECR adoption Because ECR requires tight coordination between supply side and demand side practices between partners, manufacturers such as Unilever assign multilevel, multifunctional, customer business development teams to their major retail accounts Such teams replace the traditional supplier–retailer interfaces, which were characterized by lower-level sales representatives who called on buyers and emphasized prices, quantities, and deals In addition, companies such as Procter & Gamble have adapted their incentive systems to support ECR adoption An interview partner mentioned that "if internal performance measurement and reward systems do not capture true costs and profits, then the ECR effort will not result in significant and lasting progress" Thus

H_1 The greater the transaction-specific investments by the supplier, the higher is the level of ECR adoption

H_2 The greater the implementation of (a) cross-functional teams and (b) a supportive incentive system in the supplier's organization, the higher is the level of ECR adoption

Effects of ECR Adoption on Supplier Outcomes

Given our objective to assess whether suppliers benefit from adopting ECR, we pursue a comprehensive assessment of supplier performance from three different perspectives economic, relational, and strategic

Economic performance Growth, profits, and sales are the most frequently used measures of economic performance (Kumar, Stern, and Achrol 1992, Venkatraman and Ramanujam 1986) To be close to the concept of relational rents, we define supplier economic performance as the sales, profits, and growth that a supplier generates in the product category with the focal retailer compared with its performance at other retailers and other categories

Suppliers that adopt ECR incur lower transaction costs because, contrary to traditional adversarial relationships, trading partners that adopt ECR do not need to specify every detail of the agreement in a contract Monitoring costs are also lowered as self-enforcement replaces the more expensive external or third-party monitoring Suppliers proactively engage in value-creation initiatives, such as sharing valuable knowledge (e g , consumer and shopper knowledge) or combining complementary resources (e g , to develop categories or new solutions for consumers), if they are credibly assured that this knowledge will not be readily shared with competitors (Dyer and Singh 1998) Parties in ECR relationships are more likely to engage in such value-creating activities because the joint processes serve as economic hostages, and there are credible assurances that they will be rewarded for their efforts

Perceived equity Relational performance can be examined through supplier perceptions of equity in the relationship with the retailer Equity is related to the division of benefits and burdens A supplier experiences equity when it perceives that the outcomes it and the retailer receive are proportional to their respective inputs to the relationship (Scheer, Kumar, and Steenkamp 2003)

Jap (2001, p 88) notes that "how the sharing process affects the relationship also carries long-term ramifications In many industries, organizations need to work with each other on a repeated basis If organizations act opportunistically in the short run, they may develop a negative reputation that will inhibit other organizations from working with them in the future" Because ECR relationships are long-term relationships with significant specific investments, partners are more likely to monitor and address any temporary inequities over time to prevent dissolution resulting from inequity

Capability development Finally, we conceptualized supplier strategic performance using the dynamic capability lens that emphasizes the importance of capability development through organizational learning (Teece, Pisano, and Shuen 1997) Empirical attempts to measure capability improvements are scarce Herein, we conceptualized a supplier's capability development as improvements in ECR-related processes resulting from collaboration with the focal retailer

Interorganizational learning is critical to competitive success because organizations often learn by collaborating with other organizations (e g , Inkpen 1996) It is through collaborative experiences that both explicit and tacit knowledge are shared and new knowledge is created (Inkpen 1996) Efficient consumer response helps create interfirm knowledge-sharing routines that permit the transfer, recombination, or creation of specialized knowledge Furthermore, the ability to exploit outside sources of knowledge is largely a function of prior related knowledge or the "absorptive capacity" of the recipient (Cohen and Levinthal 1990) Efficient consumer response is likely to help the supplier develop partner-specific absorptive capacity to assimilate valuable knowledge from a particular retailer (Lane and Lubatkin 1998)

> H_3 The higher the level of ECR adoption, the greater is the supplier's (a) economic performance, (b) perceived equity, and (c) capability development

Main Effects of Trust on Supplier Outcomes

In adversarial relationships, suppliers devote significant resources to detect, estimate, and counteract retailer opportunism (e g , diverting, forward buying), thus increasing transaction costs and lowering economic performance Trust results in greater openness between suppliers and retailers and thus greater knowledge and appreciation for each other's contribution to the relationship Consistent with this reasoning, several studies find positive associations between trust and economic performance (e g , Geyskens, Steenkamp, and Kumar 1998, Zaheer, McEvily, and Perrone 1998) as well as between trust and distributive justice (e g , Kumar, Scheer, and Steenkamp 1995)

Although it is widely acknowledged that openness and transparency have a positive effect on learning (Doz 1996, Hamel 1991, Nonaka and Takeuchi 1995), few studies discuss the effects of trust on capability development From a transaction-cost perspective, self-enforcing safeguards such as trust contribute to a freer and greater exchange of information between committed exchange partners because decision makers do not believe that it is necessary to protect themselves from the other's opportunistic behavior

More important than the quantity of information exchanged is the ability to absorb tacit and "sticky" know-how Unlike information, knowledge is about beliefs, commitment, action, and meaning Thus, it is often defined as "justified true belief" (Nonaka and Takeuchi 1995) Information and know-how are also context specific and relational (i e , they depend on the situation and are created dynamically in social interaction among people) Information in adversarial relationships may be suspected of being false, misleading, or manipulative and therefore may not be internalized Trust increases the perceived truthfulness of knowledge, enhances the absorption of tacit and sticky know-how from an exchange partner, and thus improves the capability development of the supplier

> H_4 The higher the level of trust, the greater is the supplier's (a) economic performance, (b) perceived equity, and (c) capability development

Moderating Effects of Trust on Supplier Outcomes

Although suppliers may be forced to adopt collaborative ECR practices by dominant retailers, in the absence of trust, it is unlikely that suppliers will proactively initiate many of the value-creating initiatives that would benefit both parties There is always the fear in nonexclusive relationships that the other party may share the acquired knowledge with others In the presence of trust, ECR adoption leads to an even freer and greater exchange of information and know-how between retailers and suppliers because of the reduced fear of opportunistic behavior Specifically, ECR provides the ability to work with the partner using more effective and efficient routines, but trust motivates parties to exploit its potential benefits fully Furthermore, in addition to obtaining greater benefits, companies that have ECR relationships with high levels of trust are likely to invest more in the relationship The ensuing positive spiral of investments and benefits for each party should make it more difficult to keep track of strict proportionality, thus leading to greater feelings of equity

> H_5 The higher the level of trust, the greater are the effects of ECR adoption on the supplier's (a) economic performance, (b) perceived equity, and (c) capability development

Main Effects of Retailer Capabilities on Supplier Outcomes

Although congruent competencies help a company understand the limitations, processes, and nature of the other party's competencies, they impede the ability to create returns beyond that which is individually obtainable to each firm In contrast, complementary retailer resources supply critical capabilities and generate greater performance benefits for the supplier For example, in an ECR relationship, suppliers may contribute to category management with a distinct know-how of managing products and understanding consumers, whereas retailers may supply their knowledge about categories and the shoppers For efficient replenishment processes, manufacturers possess unique know-how about competitive downstream promotions, and retailers possess unique knowledge about proprietary downstream sales patterns The synergistic potential of such complementary assets may vary and create differential potentials for interpartner learning and thus for increasing relational rents (Dyer and Singh 1998) In addition, the greater the retailer capability, the more valued are the inputs of the retailer, thus leading to more favorable perceptions of equity

> H_6 The higher the level of retailer capabilities, the greater is the supplier's (a) economic performance, (b) perceived equity, and (c) capability development

Moderating Effects of Retailer Capabilities on Supplier Outcomes

Although in principle the retailer's capabilities are equally available for all of its suppliers, not all suppliers are equally capable of exploiting them (Lane and Lubatkin 1998) Recent research indicates that the ability of alliance partners to realize the benefits from a partner's strategic resources is conditioned on compatibility in decision processes, information and control systems, and culture (Doz 1996) By default, ECR adoption leads to greater compatibility of organizational systems because the creation of joint processes and the sharing of data and know-how increases interoperability of processes and systems, which in turn reduces transaction cost and increases economic and operational performance

Firms vary in their ability to identify potential partners and to value their resources as a result of differences in both prior collaborative experiences and internal search and evaluation capabilities (Dyer and Singh 1998) We argue that suppliers that engage in close and transparent ECR relationships have a superior judgment of the retailer's capabilities, which favorably influences their perceptions of equity

The effect of ECR adoption on capability development is enhanced in the presence of superior retailer capabilities because such capabilities create additional synergistic resources that can be leveraged more effectively by the supplier in intense collaborations In ECR relationships, partner-specific absorptive capacities enable better sharing, absorption, and transformation of sticky and tacit knowledge Superior retailer capabilities reflect a larger reservoir of knowledge that is available for absorption by the supplier

> H_7 The higher the level of retailer capabilities, the greater is the effect of ECR adoption on the supplier's (a) economic performance, (b) perceived equity, and (c) capability development

Methodology

Research Setting and Data Collection Procedure

A supermarket chain that is among the world's top 40 retailers was the empirical setting The retailer had asked all suppliers to adopt ECR, but the response was mixed Thus, it volunteered to support our study Selecting the suppliers of a single retailer allowed the degree of control necessary to enable us to tie any performance benefits for suppliers to the effects of the constructs of interest (e g , ECR adoption) rather than to extraneous factors (e g , differences between retailer strategies or competitive environment) (cf Hibbard, Kumar, and Stern 2001) We collected data from two sources (1) survey data from suppliers of the retailer on the extent of ECR adoption, perceived outcomes, antecedents, and moderating constructs and (2) archival data from the retailer's records on supplier economic performance

For the survey data collection, the retailer provided e-mail addresses of active suppliers and the name of the main supplier contact (typically the key account manager) for the relationship In total, 996 questionnaires, which promised confidentiality of responses, were sent by e-mail We asked suppliers to select one of the three largest categories that they supplied to the focal retailer and to answer all questions with respect to this category A total of 216 e-mails failed because of invalid e-mail addresses, four suppliers were listed twice, and four suppliers had merged with other suppliers on the list, this resulted in 772 questionnaires that effectively reached their destination Nonrespondents were sent reminders by e-mail and were later telephoned We received 266 completed questionnaires, for an effective response rate of 34 5%

We evaluated nonresponse bias using Armstrong and Overton's (1977) procedure Using two-tailed t-tests, we compared early with late respondents on four important demographic variables—supplier size, category share of supplier's sales, retailer's share of supplier category sales, and supplier's share of category in the overall grocery industry—and seven outcome measures—perceived economic performance, archival sales value, archival sales volume, archival supplier service, archival invoice accuracy, perceived equity, and capability development Because we observed no significant differences ($p <$ 05), nonresponse bias did not appear to be a problem, though a more stringent test would have been to compare respondents with nonrespondents (Mentzer, Flint, and Hult 2001).

Measure Validation for ECR Adoption

Adapting Anderson and Gerbing's (1988) two-step approach, we developed separate measurement models before conducting tests of the hypothesized relationships between constructs. There is no ECR adoption scale in the academic literature. Exploratory field research indicated that the Global ECR Scorecard, developed by a team of practitioners, consultants, and academics, provides a comprehensive framework for structuring ECR activities between retailers and suppliers. The Global ECR Scorecard, which is conceptualized as an index, is widely used and is linked to a Web site on which online comparisons with "best practices" are possible (www.globalscorecard.net). The Global ECR Scorecard comprises 37 questions, each related to a specific ECR practice, spanning the three ECR dimensions: (1) demand side, which covers demand strategy and capabilities, consumer value creation, and optimizing assortments, promotions, and new product introductions, (2) supply side, which covers supply strategy and capabilities, responsive replenishment, integrated demand-driven supply, and operational excellence, and (3) enablers and integrators, which covers common data and communication standards, cost/profit and value measurement, collaborative planning, forecasting and replenishment, and e-business.

The Global ECR Scorecard has not been submitted to any psychometric validation, and it has not been used in academic studies. Many of the items are complex and difficult to understand. In addition, the practice of ECR has evolved since 1998 when several national ECR scorecards were consolidated into the Global ECR Scorecard questionnaire. To ensure that we covered the entire scope of ECR as currently practiced, we reformulated the original items into simpler questions. Then, using managers of the retailer's supplier relations department and several suppliers, we reworded the questions so that their intended meaning would be accessible without additional explanation. This entailed splitting items into distinct questions, adding questions to convey the nuances of the concepts, or dropping redundant items and those practices not currently used under the scope of ECR. Consistent with the Global ECR Scorecard, we used a five-point scale, anchored by "nothing planned" and "fully implemented." As a stem we formulated, "For the product range you have chosen, to what extent have the retailer and your company jointly implemented a process to," followed by the specific item.

Because ECR is conceptualized as a formative construct, it is assumed that the items cause the latent variable rather than the construct being reflected in its items (Jarvis, Mackenzie, and Podsakoff 2003). Because formative constructs require a census of all concepts that form the construct, we presented the resulting items to panels of retailers and suppliers with extensive ECR experience to ensure that they covered the entire domain of the concept (Jarvis, Mackenzie, and Podsakoff 2003). We modified problematic items for greater clarity. We then submitted all items to a panel of three academics to assess face validity. On the basis of this, 33 items constituted the ECR index; they reflect three facets: (1) the demand side items, which encompass four factors (each with three items) that we labeled collaborative category development, collaborative new product introduction, collaborative consumer value creation, and collaborative channels development, (2) the supply side items, which encompass two factors that we labeled collaborative planning, forecasting, and replenishment (which consists of five items) and collaborative transport optimization (which consists of two items), and (3) the enablers and integrators, which encompass three factors that we labeled common data standards, collaborative operational problem solving, and collaborative process improvement tools.

Because ECR is an index, we did not estimate a confirmatory measurement model (Jarvis, Mackenzie, and Podsakoff 2003). To form the index, we averaged the items to obtain a score for each subfactor. Then, we averaged these subfactor scores to obtain the scores for each of the three facets, which we combined to obtain the ECR score for each relationship. The Appendix contains the items, means, and standard deviations.

Measure Validation for Other Constructs

We conceptualized transaction-specific investments in line with Williamson's (1985) distinction among physical, process, human, and site-specific assets. However, because our interviews indicated that site-specific investments were a minor issue, we concentrated on the first three categories of specific investments. We tailored items that Anderson and Weitz (1992) and Heide and John (1988) use to the specific situation in the fast-moving consumer goods industry on the basis of supplier interviews. We estimated a measurement model that specified transaction-specific investments as a second-order factor and physical, process, and human assets as first-order factors. As Table 1 indicates, although the chi-square (125.593, degrees of freedom [d.f.] = 52) was significant ($p < .001$), the comparative fit index (CFI) (.960) and the Tucker–Lewis index (TLI) (.950) were above the benchmark of .90. For the three first-order factors, both composite reliabilities were between .84 and .89, and the overall reliability for the second-order factor was estimated at .78.

We developed new scales for cross-functional teams and incentive systems. On the basis of supplier interviews, it appeared that the three key supplier areas to help implement ECR across retailers were category management, key account management, and supply chain management. Therefore, three items assessed whether cross-functional teams and supportive incentive systems were implemented in relation to category management, key account management, and supply chain management across retailers. We estimated a measurement model that specified cross-functional teams and incentive systems as two first-order factors. The chi-square (53.031, d.f. = 8) was significant ($p < .001$), but the overall fit was acceptable because the CFI (.956) and the TLI (.918) were above the recommended level of .90. The composite reliabilities were acceptable at .87 for cross-functional teams and at .91 for incentive systems.

We measured the two moderators of trust and retailer capabilities using five and seven items, respectively. We

TABLE 1
Measurement Models for Antecedents, Moderators, and Outcomes of ECR Adoption

Antecedents	Items	Composite Reliabilities	Fit Measures
Measurement Model 1			
Transaction-Specific Investments			
Physical assets	3	84	$\chi^2_{(52)}$ = 125 593
Process assets	5	89	CFI = 960
Human assets	4	88	TLI = 950
	12	78	RMSEA = 073
Measurement Model 2			
Organizational Enablers			
Cross-functional teams	3	87	$\chi^2_{(8)}$ = 53 031
Incentive systems	3	91	CFI = 956
			TLI = 918
			RMSEA = 146
Measurement Model 3			
Moderators			
Trust	5	83	$\chi^2_{(53)}$ = 214 238
Retailer capabilities	7	92	CFI = 912
			TLI = 891
			RMSEA = 107
Measurement Model 4			
Supplier Outcomes			
Perceived economic performance	6	81	$\chi^2_{(64)}$ = 421 510
Capability development	7	93	CFI = 833
			TLI = 796
			RMSEA = 145

Notes RMSEA = root mean square error of approximation

used Kumar, Scheer, and Steenkamp's (1995) five items of trust, which assess the extent to which the retailer is honest and benevolent There was no existing scale to measure retailer capabilities On the basis of supplier interviews, we identified seven key retailer capabilities with respect to ECR, and the scale assessed the relative capabilities of the focal retailer compared with other retailers We estimated a measurement model that specified the 12 items loading on to the two constructs of trust and retailer capabilities Although the chi-square (214 238, d f = 53) was significant (p < 001), the overall fit was reasonable because the CFI (912) and the TLI (891) were close to or above the recommended level of 90 The composite reliabilities were 83 and 92 for trust and retailer capabilities, respectively

We assessed economic performance in three ways We measured (1) the supplier's perception of its economic performance, which encompasses turnover, profitability, and growth, compared with other product categories and other retailers From the retailer's archival records, for 206 of the 266 suppliers and for a period of 63 weeks (roughly 30 weeks before and 33 weeks after the initial mailing of the questionnaire), we obtained data on each supplier's (2) weekly sales performance (i e , sales value, or retail sales value to the retailer per week) and sales volume (i e , the number of cases sold per week) and (3) weekly service performance (i e , supplier service, or percentage of cases supplied against what the retailer ordered) and invoice accuracy (i e , the percentage of supplier invoices that match the goods received in depot) Because data for each measure were highly correlated, for each supplier, we averaged the archival performance data across the 63 weeks and then reduced the results to single standardized scores, one for archival sales performance and one for archival service performance After a logarithmic transformation of each measure, we performed a principal components analysis for each pair of two measures to extract two single-factor scores for the subsequent analyses

We used Scheer, Kumar, and Steenkamp's (2003) adaptation of Walster, Walster and Berscheid's (1978) global equity measure in which equity is calculated as the quotient of the perceived outputs and inputs of the supplier less the quotient of the perceived outputs and inputs of the retailer Equity values less than zero indicate that the supplier perceives negative inequity, whereas an equity index greater than zero indicates that the supplier perceives positive inequity Because this is an index, we did not estimate a confirmatory measurement model for equity

Kale, Singh, and Perlmutter's (2000) work inspired our notion of capability development, which assessed whether the supplier had significantly improved seven ECR-related capabilities through working with the retailer The measurement model for perceived economic performance and capability development showed a significant chi-square (421 51, d f = 64, p < 001), but the overall fit was marginal because the CFI (833) and the TLI (796) were close to or above the marginal threshold of 80 The composite reliabilities were 81 for economic performance and 93 for supplier capability development, and both exceeded the preferred level of 70

For all the confirmatory measurement models, we assessed discriminant validity between pairs of constructs using Anderson and Gerbing's (1988) procedure as well as Fornell and Larcker's (1981) more stringent procedure, which requires that the average variance extracted for any two constructs is greater than their shared variance All constructs demonstrated discriminant validity For example, the shared variance between cross-functional teams and incentive systems was 245, whereas the average variance extracted for the two constructs was 553 and 625, respectively In addition, we compared the average within-construct item correlation with the average between-constructs item correlation for the eight multi-item constructs Of the 21 such comparisons, all demonstrated lower between-construct correlations The previously discussed measure validation procedures demonstrate that all the measures possess adequate unidimensionality, reliability, and convergent and discriminant validity

Results

To test our main and moderating effects hypotheses, we used generalized least squares (GLS) analysis, which is preferred to ordinary least squares (OLS) regressions when the residuals of the regression equations are correlated and the system is recursive, because it fully accounts for correlation of the diagonal sigma matrix and leads to estimates that are unbiased and consistent (Greene 2003) In the face of a triangular beta matrix of endogenous variables, seemingly unrelated regression is equivalent to GLS (Lahiri and Schmidt 1978), thus, we estimated our equations using seemingly unrelated regression in SAS, however, for our archival-based dependent variables, we used OLS because their residuals were not correlated with ECR adoption as a result of different measurement approaches For all scales, with the exception of the ECR adoption index, we used factor scores to combine the items into a construct score (Lastovicka and Thamodaran 1991) The construct level correlation matrix appears in Table 2

Table 3 provides an overview of the results Consistent with H_1 and H_2, transaction-specific investments (416, $p <$ 001), cross-functional teams (128, $p <$ 001), and incentive systems (075, $p <$ 05) have a positive impact on ECR adoption Consistent with H_{3a} and H_{3c}, ECR adoption has a positive effect on the supplier's perceptual economic performance (343, $p <$ 001), archival sales (391, $p <$ 001), and capability development (845, $p <$ 001) However, contrary to H_{3b}, ECR adoption has a significant, negative effect on perceived equity (– 305, $p <$ 001) We did not observe a significant effect on archival service

Consistent with H_4, trust has a positive effect on the supplier's archival sales performance (462, $p <$ 05) and perceived equity (689, $p <$ 001) but not on perceptual economic performance, archival service performance, or capability development Consistent with H_{5a}, trust enhances the relationship between ECR adoption and perceived economic performance (221, $p <$ 05), but it has no significant moderating effects on the two archival measures and capability development Thus, H_{5a} is partially supported, but H_{5c} is not Contrary to H_{5b}, trust negatively influences the relationship between ECR adoption and perceived equity (– 158, $p <$ 05)

Retailer capabilities have a positive effect on supplier perceptual economic performance (711, $p <$ 01), archival service performance (586, $p <$ 05), and capability development (455, $p <$ 01) Thus, H_{6c} is fully supported, but H_{6a} is only partially supported because the effects on archival sales performance are not significant Contrary to what we expected, the effects of retailer capabilities on perceived equity (H_{6b}) are negative (– 446, $p <$ 05)

The moderating effects of retailer capabilities are complex Contrary to H_{7a}, retailer capabilities have a significant, negative moderating effect on the relationship between ECR adoption and supplier perceptual economic performance (– 229, $p <$ 05) The effects on archival sales and service performance are not significant However, consistent with H_{7b}, retailer capabilities have a positive moderating effect on the relationship between ECR adoption and perceived equity (283, $p <$ 001) We did not observe moderating effects of retailer capabilities on capability development, thus, H_{7c} is not supported

Effects of Supplier Size and Brand Type

Practitioners often have diverse opinions on what type of suppliers—large versus small and private label versus branded—benefit more from ECR Lacking any theoretical reasons for such differences, we decided not to develop hypotheses but rather to explore this issue *post hoc* We conducted two sets of analyses First, to assess the robustness of the results with respect to supplier size, we divided the overall sample into large versus small suppliers Second, to assess the robustness of the results with respect to branded versus private-label suppliers, we divided the sample into those primarily supplying supplier brands and those primarily supplying private-label products We initially conducted paired differences tests to examine whether the split samples differed significantly on the key antecedents and outcome constructs Because we did not observe significant differences in the case of either split, we concluded that the subsamples were representative of the overall sample We then tested the effects of supplier size and brand type by including corresponding dummy variables into each of the five regression equations that we estimated previously All ten coefficients related to the dummies were insignificant, indicating that neither supplier size nor supplier brand type had any significant effects ($p <$ 10) on our results Therefore, our findings are robust with respect to differences between supplier size and brand type

In addition, we explored whether certain types of suppliers were more likely to adopt ECR Regression results with ECR adoption as the dependent variable indicate that the supplier's total company sales (166, $p <$ 05), the product range's share of the supplier's total sales (213, $p <$ 01), and the retailer's share of the supplier's total sales in this product group (224, $p <$ 01) had significant, positive effects on ECR adoption In contrast, the proportion of the supplier's turnover with the retailer in the product range that is private label (061, $p >$ 10) and the share of this product range in the total grocery market (031, $p >$ 10) did not have significant effects In summary, the larger the supplier

TABLE 2
Factor Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
Mean	2 29	3 85	3 27	2 22	4 11	3 82	4 02	[a]	[a]	– 44	3 66
Standard deviation	69	1 22	1 29	1 33	1 2	1 34	1 03	[a]	[a]	84	1 47
1 ECR adoption	1										
2 Transaction-specific investments	592***	1									
3 Cross-functional teams	326***	178**	1								
4 Incentive systems	372***	374***	328***	1							
5 Trust	482***	334***	088	181**	1						
6 Retailer capabilities	546***	424***	131*	273***	545***	1					
7 Perceived economic performance	387***	309***	082	212***	399***	416***	1				
8 Archival sales performance	275***	402***	153*	126	224**	223**	245***	1			
9 Archival service performance	071	260***	069	– 005	031	183**	088	273***	1		
10 Perceived equity	149*	– 027	– 025	024	415***	347***	269***	– 002	– 028	1	
11 Capability development	663***	686***	236***	37***	52***	613***	418***	420***	225**	151*	1

*$p <$ 05
**$p <$ 01
***$p <$ 001
[a] Denotes confidential data We have standardized these measures at the request of the focal retailer

TABLE 3
Results of GLS Analysis

Independent Variables	ECR Adoption	Economic Performance: Perceived Economic Performance	Economic Performance: Archival Sales Performance[a]	Economic Performance: Archival Service Performance[a]	Perceived Equity	Capability Development
Constant	2 29***	– 784***	– 845***	– 076	209	–1 929***
	(032)	(217)	(226)	(235)	(193)	(172)
Transaction-specific investments	416***					
	(034)					
Cross-functional teams	128***					
	(033)					
Incentive systems	075*					
	(035)					
ECR adoption		343***	391***	030	– 305***	845***
		(094)	(098)	(102)	(083)	(074)
Trust		– 333	462*	– 457	689***	– 041
		(219)	(228)	(237)	(194)	(171)
Retailer capabilities		711**	129	586*	– 446*	455**
		(217)	(225)	(234)	(192)	(170)
ECR × trust		221*	– 156	150	– 158*	051
		(089)	(092)	(096)	(079)	(069)
ECR × retailer capabilities		– 229*	– 054	– 152	283***	– 084
		(092)	(095)	(099)	(081)	(072)
R^2	431	281	149	061	233	532

*p < 05

**p < 01

***p < 001

[a] OLS estimation

Notes Approximate standard error is in parentheses is and the more important the category and the retailer are to the supplier, the more likely it is that the supplier adopts ECR[1] Conversely, the proportion of branded versus private-label supplies or the size of the category does not seem to make a difference

General Discussion

Although "win-win" partnerships, such as that between Wal-Mart and Procter & Gamble, are frequently documented in the popular press, academic studies of collaborative ECR relationships are scarce, probably because of the sensitivity of the parties involved in providing the necessary data Compared with small dealers that frequently constitute the sample of relationship marketing research, it is more difficult to persuade large retailers to cooperate with academic studies We created the conditions for supplier cooperation with this study by obtaining a retailer's cooperation and by promising an independent, confidential investigation This is unique because, in general, suppliers are unwilling to disclose particulars of their relationships with dominant retailers In addition, archival performance data from the focal retailer complemented the performance perceptions of the suppliers, thus providing a comprehensive view of the effects of ECR adoption

To the question, "Do collaborative relationships with large retailers benefit suppliers?" the answer is a qualified yes, because suppliers perceived significant economic and learning payoffs However, contrary to our expectation, ECR adoption led to greater feelings of inequity in the relationship on the part of suppliers Perhaps this explains why many suppliers complain that they do not observe any benefits from the adoption of ECR (Corsten and Kumar 2003) Although suppliers gain from ECR adoption in absolute terms, as demonstrated by the positive effects on perceived economic performance, archival sales, and capability development, their perception of the inequitable sharing of the benefits and burdens of ECR adoption leads them to believe that they are relatively deprived In other words, although suppliers gain more in ECR relationships than in other relationships, they still believe that they receive less than they deserve In addition, the negative interaction between ECR adoption and trust on equity indicates that as suppliers' trust in the retailer increases, greater ECR adoption makes suppliers believe that they are even more inequitably treated

The negative impact of ECR adoption on equity, even in the presence of high trust, raises the question whether the suppliers' feelings of greater inequity in ECR relationships are accurate and justified or merely a perceptual problem Perhaps, and anecdotal evidence suggests this, smart retailers use their power advantage to extract proportionately greater benefits from ECR adoption while cajoling suppliers into making the necessary investments for ECR Indeed, our findings suggest that suppliers believe that they are particularly exploited by retailers that they consider to possess superior know-how in the market That large and powerful retailers such as Metro, Tesco, and Wal-Mart are demanding that their suppliers adopt ECR may be considered further evidence in support of this point of view Given retailer power, suppliers have little choice but to comply with retailer demands and learn to live with inequitable returns from ECR adoption

The alternative view is that suppliers' perceptions of greater inequity in ECR relationships are inaccurate and that suppliers receive equitable benefits from ECR Ailawadi's (2001) findings that, despite 20 years of increasing retail power, supplier rents have actually risen compared with retailer rents may be cited as evidence in support of this view However, it is possible that suppliers are simply "paranoid" when they claim that retailers always receive the lion's share (Farris and Ailawadi 1992)

Unfortunately, we cannot make definitive judgments about the accuracy of suppliers' perceptions of inequity associated with ECR adoption or the process underlying any misperceptions with our data We must leave the ultimate resolution to further research Furthermore, from an economic welfare perspective, it would be interesting to understand whether ECR benefits are indeed competed away at the retail level, resulting in tangible benefits for the consumer, such as lower prices, more choice, and more service, or whether it simply leads to greater economic performance for suppliers and retailers

That trust increases archival sales and that retailer capabilities enhance perceived economic and archival service performance partially support our reasoning It pays to develop trust in relationships and to work with smarter retailers In addition, ECR relationships with trusted retailers enhance some of the economic benefits for the supplier The moderating effects of retailer capabilities are more complex Unexpectedly, retailer capabilities have a negative interaction with ECR adoption on supplier economic performance This finding seems somewhat at odds with the observed and expected positive interaction between retailer capabilities and ECR adoption on perceived equity It implies that smart retailers take a bite out of the supplier's economic performance, yet suppliers are happier with what is left

We speculate that gradually, suppliers become dependent on the capabilities of smarter retailers After all, ECR is a knowledge- and data-intensive process, and as suppliers become increasingly locked in on consumer data and knowledge of smarter retailers, such retailers may be able to extract some of the additional rents generated through ECR adoption and appropriate them for themselves Still, why do suppliers perceive greater equity in ECR relationships with smarter retailers, especially in light of the lowered supplier economic benefits that they receive from ECR adoption with these capable retailers?

Bargaining and negotiation theory predicts that asymmetric capabilities lead to a perception of relative inferiority, which in turn leads to the passive acceptance of lower performance outcomes Dwyer and Walker (1981) examine bargaining between pairs of negotiators when there are power imbalances They show that weaker parties appear to expect and to receive a smaller share of the benefits to divide between them, whereas the stronger parties enjoy the reverse situation In addition, suppliers may be more willing to make concessions to powerful and smarter retailers in the hope that such relationships may help expand market share Bloom and Perry (2001) find that suppliers of Wal-Mart, certainly a powerful and smart retailer, with a large market share perform better than do large-share suppliers that report retailers other than Wal-Mart as their primary customers Finally, suppliers learn from smart retailers, which may explain why they believe that it is fair that such retailers take a bigger bite out of the ECR returns However, these are conjectures that require more rigorous research to resolve

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[1] Note that size of the supplier is a different construct from the archival sales measure that we use as one of our dependent variables Size of the supplier reflects sales to all retailers across all categories, whereas our archival sales measure reflects sales to this retailer in the focal category The correlation between the two indicators is 133

Limitations

We must note some limitations of this study First, we conducted our research in a particular setting—that is, with the suppliers of a single retailer—which raises questions of generalizability with respect to both other retailers and other countries Second, although we obtained archival data on the performance of the suppliers, it would have been useful to examine the retailer's perceptions of ECR adoption and the outcomes from ECR Adding category or brand development indexes as performance measures to better understand the competitive effects of ECR adoption would also be valuable The archival service performance measure would benefit from further investigation to better understand what other variables explain the remaining variance Third, a more stringent test of respondents versus nonrespondents should have been conducted Fourth, for the first time in the literature, we propose a scale to assess ECR adoption This scale requires subsequent replication and refinement Finally, the role of antecedents, focal construct, and moderating variables (trust and retailer capabilities) and their impact on outcomes would benefit from more stringent longitudinal studies

Conclusions

Notwithstanding the new relationship paradigm, there is considerable cynicism among suppliers about deeper collaborative relationships with large and powerful retailers This has led some observers to note that in practice, "the days of power play between retailers and manufacturers are far from over" (Kuipers 2001, p 25) Despite this, our study demonstrates that suppliers achieve greater economic performance and develop their capabilities in collaborative ECR relationships These findings apply regardless of whether a supplier is small or large or whether it supplies private-label or branded goods However, considering the high cost of ECR adoption, suppliers should be prudent and safeguard their investments If a supplier has a choice, our study provides some guidelines as to which type of retailers it should favor in establishing ECR relationships As a supplier, it is preferable to partner with trusted and smart retailers

Our findings on perceived equity indicate that suppliers should be realistic about the sharing of benefits from ECR adoption if they want to avoid negative feelings associated with inequity Negative inequity can lead to frustration and hostility, and eventually, this can threaten a relationship It may be wise for suppliers to "manage" equity by adapting their perceptions of contributions and benefits and by accepting some inequity as the "cost of doing business," particularly when, as we demonstrate herein, there are substantial economic and learning benefits from ECR relationships

APPENDIX
ECR Adoption Measures

Demand Side Collaboration (1 98, 04)[g]

Collaborative Category Development[a] (1 98, 06)[g]

For the product range that you have chosen, to what extent have the retailer and your company jointly implemented a process to

- share and discuss consumer and shopper wants and needs,
- share and discuss shopping, buying, and consumption patterns (e g , loyalty cards), and
- evaluate promotions jointly against a common set of objectives?

Collaborative New Product Introduction[a] (2 27, 06)[g]

For the product range that you have chosen, to what extent have the retailer and your company jointly implemented a process to

- discuss new product ideas and prototypes,
- jointly test prototypes (trial launches), formulas, and recipes, and
- evaluate new product introductions jointly against a common set of objectives?

Collaborative Consumer Value Creation[a] (2 38, 06)[g]

To what extent have the retailer and your company jointly implemented a process to

- display products in combination with complementary products or services,
- implement innovative point-of-sales displays, shelves, or services, and
- derived all plans and strategies from the principles of creating value for the consumer?

Collaborative Channel Development[a] (1 35, 04)[g]

To what extent have the retailer and your company jointly implemented a process to

- sell products over the internet,
- deliver products directly to customers' homes, and
- establish other alternative, nontraditional channels to consumers?

APPENDIX
Continued

Supply Side Collaboration (2 55, 06)[g]

Collaborative Planning, Forecasting, and Replenishment[a] (2 38, 06)[g]

For the product range that you have chosen, to what extent have the retailer and your company jointly implemented a process to

- share and discuss planning information,
- share and discuss forecasting information,
- plan production and replenishment along the whole supply chain,
- plan and schedule production processes based on the retailer's sales data, and
- optimize product flow while balancing service level and costs along the whole supply chain?

Collaborative Transport Optimization[a] (2 74, 08)[g]

For the product range that you have chosen, to what extent have the retailer and your company jointly implemented a process to

- optimize transport utilization without compromising the required service level and
- integrate hauliers, logistics, and/or information service providers into operational processes?

Enablers and Integrators (2 28, 05)[g]

Common Data Standards[a] (2 68, 08)[g]

To what extent do the retailer and your company use international standards

- to track and trace products, shipping containers, pallets, and/or locations (e g , European article numbering),
- to exchange master data (e g , European article numbering),
- to share information by the Internet (e g , global messaging protocols),
- for electronic data interchange (e g , EDIFACT), and
- for barcode scanning?

Collaborative Operational Problem Solving[a] (2 34, 07)[g]

To what extent have the retailer and your company jointly implemented a process to solve problems concerning

- product availability at point of sales,
- delivery accuracy,
- production effectiveness, and
- upstream supply of ingredients, raw material, and packaging?

Collaborative Process Improvement Tools[a] (1 81, 05)[g]

For the product range that you have chosen, to what extent have the retailer and your company jointly implemented a process to

- regularly map and analyze joint processes and
- continuously improve processes into more integrated joint processes?

To what extent do the retailer and your company use

- profit/cost modeling (e g , activity based costing) to analyze the supply chain cost and identify joint savings,
- scorecards and templates to analyze, assess, and monitor each other's relational capabilities, and
- checklists, templates, or guidelines to assist decision making?

Transaction-Specific Investments

Physical Assets[b]

Our company has made significant investments dedicated to the retailer that cannot be deployed elsewhere in

- production systems (e g , dedicated lines),
- logistics and distribution systems, and
- information systems

Process Assets[b]

To meet the requirements of dealing with the retailer, our company has specifically tailored the

- category management process,
- product development process,
- promotion process,
- replenishment process, and
- product launch process

Human Assets[b]

Substantial time and effort is spent meeting face-to-face with the retailer's representatives by our

- customer business or key account managers,
- supply chain managers, and
- product development managers

Cross-Functional Teams[c]

To what extent has your company implemented cross-functional teams for

- category management,
- key account management, and
- supply chain management?

Incentive Systems[c]

To what extent has your company implemented incentive systems and remuneration policies to support

- category management,
- key account management, and
- supply chain management?

Trust[b]

- The retailer usually keeps the promises it makes to our company
- The retailer gives sound advice on our business, and our company knows it is sharing its best judgment
- The retailer is concerned about our company's welfare, particularly when making major decisions
- The retailer responds with understanding when we inform it of problems
- Our company can depend on the retailer's support in matters of importance to us

Retailer Capabilities[d]

Compared with other retailers that you work with, to what extent has the retailer superior know-how with respect to

- category management,
- supply chain management,
- consumer/customer understanding,
- pricing management,
- promotion management,
- new product launch, and
- new product development?

APPENDIX
Continued

Perceived Economic Performance[e]

For this product range, and compared with others, how high is your

- profitability,
- turnover, and
- growth?

At the retailer, and compared with other retailers that you work with, for the chosen product range, how high is your

- profitability,
- growth, and
- turnover?

Perceived Equity[f]

All things considered, evaluate your company's and the retailer's relative participation in this relationship

- your company's contributions to the relationship,
- the retailer's contributions to the relationship,
- the outcomes your company receives from the relationship, and
- the outcomes the retailer receives from the relationship

Capability Development[e]

Through working with the retailer, to what extent has your company improved capabilities in

- category management,
- supply chain management,
- consumer understanding,
- pricing management,
- promotions management,
- new product launch, and
- new product development?

---

[a] This is measured on a five-point scale with "nothing planned" and "fully implemented" as the anchors

[b] This is measured on a seven-point scale with "strongly disagree" and "strongly agree" as the anchors

[c] This is measured on a five-point scale with "minimal use" and "standard practice" as the anchors

[d] This is measured on a seven-point scale with "very small extent" and "very large extent" as the anchors

[e] This is measured on a seven-point scale with "significantly below average" and "significantly above average" as the anchors

[f] This is measured on a six-point scale with "extremely low" and "extremely high" as the anchors

[g] The mean and standard deviation for ECR adoption subdimensions are in parentheses

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Christian Homburg & Andreas Fürst

How Organizational Complaint Handling Drives Customer Loyalty: An Analysis of the Mechanistic and the Organic Approach

This article addresses how an organization's complaint management affects customer justice evaluations and, in turn, customer satisfaction and loyalty. In delineating an organization's complaint management, the authors draw a distinction between two fundamental approaches, the mechanistic approach (based on establishing guidelines) and the organic approach (based on creating a favorable internal environment). The empirical analysis is based on a dyadic data set that contains managerial assessments of companies' complaint management and complaining customers' assessments with respect to perceived justice, satisfaction, and loyalty. Findings indicate that though both the mechanistic and the organic approach significantly influence complaining customers' assessments, the mechanistic approach has a stronger total impact. Moreover, the study provides evidence of a primarily complementary relationship between the two approaches. Another key facet of the study is related to the moderating influences of the type of business (business-to-business versus business-to-consumer) and type of industry (service versus manufacturing). The results show that the beneficial effects of the mechanistic approach are stronger in business-to-consumer settings than in business-to-business ones and for service firms than for manufacturing firms.

Despite organizational precautions, problems can occur in the relationship between a company and a customer. Thus, firms are regularly confronted with complaining customers. At this critical stage of a relationship, complaint handling embodies the acid test of a firm's customer orientation. Whereas a poor recovery may result in "magnification of the negative evaluation" (Bitner, Booms, and Tetreault 1990, p. 80), an excellent recovery can increase customer satisfaction and loyalty beyond the degree before the failure (e.g., Smith and Bolton 1998). The relevance of complaint management is also emphasized by studies indicating that its return on investment can be high, sometimes exceeding 100% (Technical Assistance Research Program 1986).

However, there is ample evidence that many companies do not handle complaints effectively. It has been reported that approximately half of the complaining customers are dissatisfied with complaint handling (e.g., Estelami 2000; Grainer 2003). This provides support for Tax, Brown, and Chandrashekaran's (1998, p. 60) statement that many "firms are not well informed . . . on how to deal successfully with . . . failures" and for Andreassen's (2001, p. 47) claim that "companies in general must improve their complaint resolution efforts dramatically."

Whereas many complaint studies have analyzed customer behavior (e.g., Singh 1988; Smith and Bolton 1998), there is a lack of research from a company perspective. As Singh and Widing (1991, p. 30) note, "[Q]uestions such as 'What complaint resolution mechanisms are successful?' have remained largely unexplored." This is also emphasized by Davidow (2003, p. 247), who identifies the following neglected research questions: "Which organizational response affects which type of justice? [and] Which organizational factors most influence the customer's feeling of fairness?" Research that addresses these questions should use data that combine the company and the customer perspective. However, we are not aware of a study in this area based on dyadic data.

Our study attempts to fill these research gaps. We analyze how a company's complaint management affects customer justice evaluations and, eventually, satisfaction and loyalty. In doing so, we introduce a distinction between two fundamental approaches to complaint management, the mechanistic and the organic approach. Our analysis of how these two approaches affect customer evaluations is based on a dyadic sample (i.e., data from companies and their customers). Unlike previous complaint research, our sample covers both the business-to-business (B2B) context and the business-to-consumer (B2C) context and includes service and manufacturing companies. This enhances external validity and enables us to analyze the relative importance of the two approaches in different business and industry settings.

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Theoretical Background: The Mechanistic and the Organic Approach

Our study is primarily rooted in an important theoretical perspective in organizational science that is sometimes referred to as the "behavioral theory of the firm" (e.g., Cyert and March 1992). According to this theory, human beings are characterized by bounded rationality (i.e., limited cognitive capabilities and incomplete information) so that "their actions may be less than completely rational" (March 1994, p. 9). This literature identifies several approaches for influencing employee behavior; two such approaches are particularly relevant for complaint handling.

First, companies can influence individual behavior by developing guidelines (referred to as "standard operating procedures", e.g., March and Simon 1993, p. 166) for specific activities. In doing so, a firm "does not seek to convince the subordinate, but only to obtain his acquiescence" (Simon 1997, p. 201) to act in the intended manner. The once-and-for-all decision "that a particular task shall be done in a particular way . . . relieves the individual who actually performs the task of the necessity of determining each time how it shall be done" (Simon 1997, p. 112), and therefore it enables a more rational decision making (March and Simon 1993, Simon 1997). Following terminology in the field of organizational theory (e.g., Burns and Stalker 1994, Mintzberg 1979), we refer to this approach as the *mechanistic approach*. This approach to guide behavior is closely linked to the "organization as machine" paradigm (e.g., March and Simon 1993, Scott 1998).

Second, organizations can influence behavior by focusing on training and motivating employees and by providing them with shared values and norms. Rather than developing specific guidelines on how to behave in certain situations, this approach aims to establish "in the . . . employee himself . . . a state of mind which leads him to reach that decision which is advantageous to the organization" (Simon 1997, p. 9). Human resource management (HRM) and the design of the organizational culture ensuring the "right kind of people and behaviors" form the core of this approach. This *organic approach* is rooted in the "organization as organism" paradigm (e.g., Burns and Stalker 1994, Scott 1998), which becomes especially visible in its description that the firm "injects into the very nervous systems of the organization members the criteria of decision that the organization wishes to employ" (Simon 1997, p. 112).

Role theory provides further support for the relevance of these two approaches. According to this theory, customer-contact personnel have a strong need for clarity on how managers and customers expect them to perform their jobs (e.g., Bush and Busch 1981, Teas, Wacker, and Hughes 1979). A lack of role clarity has a negative impact on job performance (e.g., Churchill et al. 1985). Research shows that both the mechanistic and the organic approach can significantly contribute to role clarity. For example, Jaworski, Stathakopoulos, and Krishnan (1993) demonstrate that role clarity is highest when there is a strong focus on both standard operating procedures and a supportive cultural environment.

In general, it is accepted that firms can use both approaches simultaneously (e.g., March and Simon 1993, Simon 1997). For example, Simon (1997, p. 9) stresses that "[i]t is not insisted that these categories [for influencing employee behavior] are . . . mutually exclusive."

Conceptual Framework and Constructs

Overview of Framework

Our unit of analysis is a company and its complaining customers. Following our previous discussion, our framework (see Figure 1) includes constructs related to guidelines for complaint handling (mechanistic approach) and a construct that captures how favorable the internal environment is with respect to complaint handling (organic approach). We assume that both approaches affect customer justice evaluations with respect to complaint handling. In turn, we expect these to influence customer satisfaction evaluations and, ultimately, loyalty. Davidow (2003) suggests the analysis of such a causal chain as an avenue for further research.

Furthermore, our framework includes moderating effects on the links between complaint-handling guidelines and customer justice evaluations. First, we suggest that these relationships are moderated by the supportiveness of the internal environment. Second, we propose that these links are moderated by the type of business and the type of industry (see Figure 1).

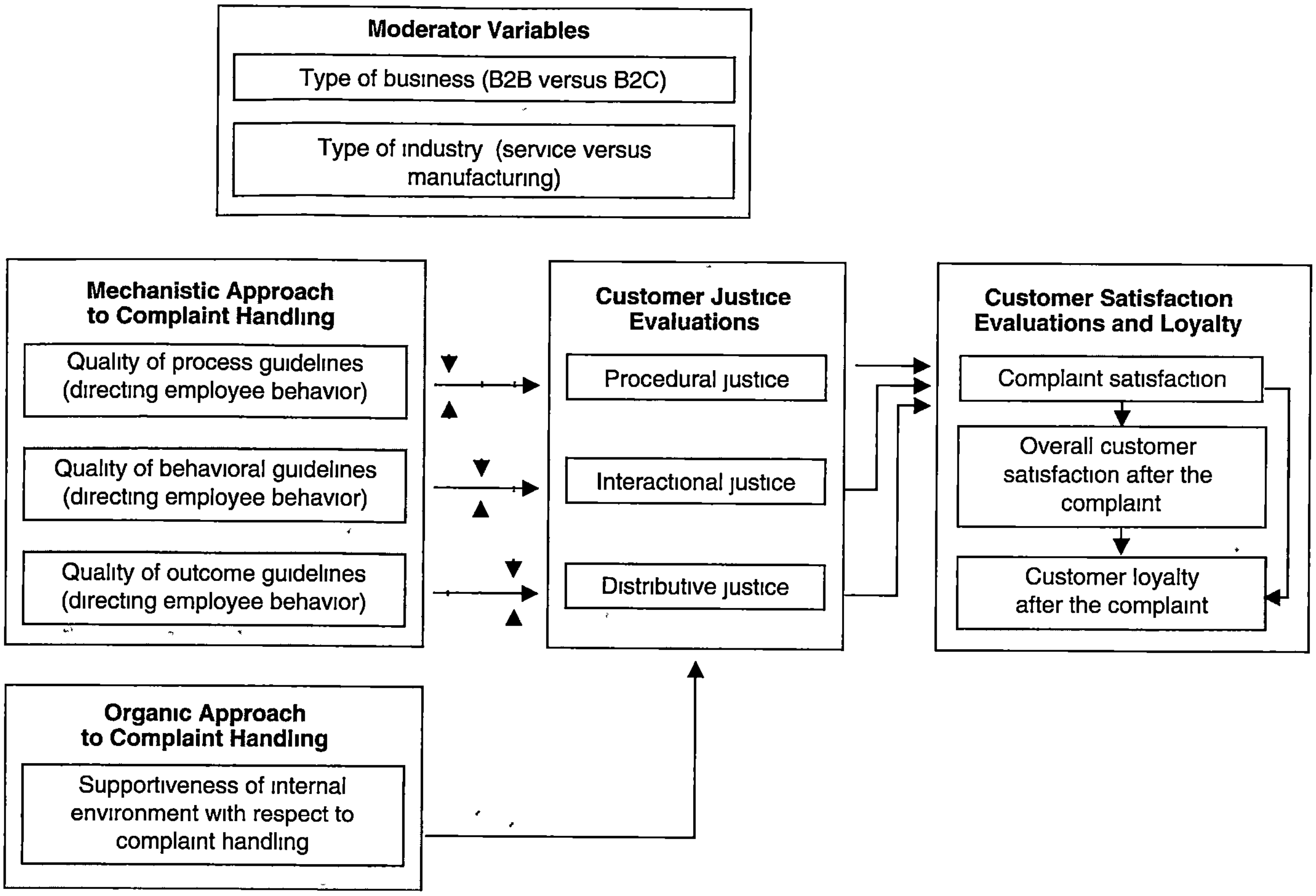
Constructs Related to Organizational Complaint Handling

Mechanistic approach. Because complainants base their evaluations on perceptions of the complaint process, interpersonal treatment, and complaint outcome (e.g., Smith, Bolton, and Wagner 1999, Tax, Brown, and Chandrashekaran 1998), our study considers process, behavioral, and outcome guidelines. Because "institutions . . . prosper as their standard practices come to match . . . the demands of the external world" (March 1994, pp. 77–78), a key aspect of our conceptualization of the quality of complaint-handling guidelines is related to their degree of customer orientation. Further aspects cover their clarity and simplicity (e.g., Bailey 1994, Berry 1995).

We define the "quality of process guidelines for complaint handling" as the degree to which a formal organizational procedure for registering and processing customer complaints exists and is consistent with complainants' needs. This construct captures whether time standards exist that ensure a fast complaint-handling process (e.g., Technical Assistance Research Program 1986) and whether staff is required to inform customers about the status of their complaint within a reasonable period of time (e.g., Andreassen 2000, Berry 1995). Moreover, it includes instructions to record and forward complaints in a quick, complete, and structured way (e.g., Bailey 1994, Van Ossel and Stremersch 1998).

We define the "quality of behavioral guidelines for complaint handling" as the degree to which an explicit organizational policy for employees' behavior toward complainants

FIGURE 1
Framework and Constructs



Moderator Variables
Type of business (B2B versus B2C)
Type of industry (service versus manufacturing)
Mechanistic Approach to Complaint Handling
Quality of process guidelines (directing employee behavior)
Quality of behavioral guidelines (directing employee behavior)
Quality of outcome guidelines (directing employee behavior)
Customer Justice Evaluations
Procedural justice
Interactional justice
Distributive justice
Customer Satisfaction Evaluations and Loyalty
Complaint satisfaction
Overall customer satisfaction after the complaint
Customer loyalty after the complaint
Organic Approach to Complaint Handling
Supportiveness of internal environment with respect to complaint handling

exists and is consistent with complainants' needs This construct includes directions for employees to be polite, helpful, and understanding while interacting with complainants as well as to show concern and take responsibility for customer problems (e g , Bailey 1994, Tax and Brown 1998)

Finally, we define the "quality of outcome guidelines for complaint handling" as the degree to which a formal organizational policy for providing compensation to complainants exists and fits customers' needs Types of compensation include correction, replacement, discount, and refund (e g , Kelley, Hoffman, and Davis 1993) For example, the construct addresses the question whether a company gives employees who are responsible for complaint handling the decision authority that is necessary to provide outcomes in such a way that complainants are satisfied (e g , Hart, Heskett, and Sasser 1990) Furthermore, it encompasses the extent to which guidelines for complaint handling allow for a generous compensation (e g , Fornell and Wernerfelt 1987) and includes instructions that the form of the outcomes should match complainants' needs (e g , Mattila 2001)

Organic approach We define the "supportiveness of the internal environment with respect to complaint handling" as the degree to which HRM practices and the organizational culture favor effective complaint handling This construct includes the extent to which personnel-related activities (i e , professional/technical training and leadership behavior, such as setting goals and evaluating and rewarding performance) support employees' customer orientation in general and customer orientation toward complainants in particular (e g , Berry 1995, De Ruyter and Brack 1993, Maxham and Netemeyer 2003) Another facet relates to the customer orientation of the corporate culture (i e , shared values, norms, and behaviors) in general (e g , Deshpandé and Webster 1989) Moreover, this construct includes the existence of a positive attitude toward complaints (e g , Johnston 2001) and a constructive attitude toward failures (i e , whether failures are viewed as a chance for organizational learning) (e g , Tax and Brown 1998)

Constructs Related to Customer Justice Evaluations

Justice theories explain people's reactions to conflict situations (e g , Gilliland 1993, Lind and Tyler 1988) Because a problem with a company (along with a subsequent complaint) is a typical example of a conflict situation, the "concept of perceived justice offers a valuable framework for explaining customers' reactions to complaint episodes" (Blodgett, Hill, and Tax 1997, p 186) We conceptualize perceived justice of complaint handling as a three-dimensional construct that includes procedural, interactional, and distributive justice (e g , Clemmer 1993, Smith, Bolton, and Wagner 1999) Whereas these constructs refer to complainants' perceptions of employee behavior (thus taking a customer perspective), the constructs related to process, behavioral, and outcome guidelines as well as the internal environment capture organizational activities that aim to influence employee behavior (thus adopting a company perspective)

"Procedural justice" reflects the perceived fairness of the complaint-handling process In our study, this construct includes the facets of timeliness (e g , Smith, Bolton, and Wagner 1999, Tax, Brown, and Chandrashekaran 1998) and process control (i e , customers' opportunity to express feelings about the problem and to present information relevant to the firm's decision about the complaint outcome, e g , Goodwin and Ross 1992, Tax, Brown, and Chandrashekaran 1998) "Interactional justice" refers to the perceived fairness of the behavior that employees exhibit toward complainants It includes customer perceptions of employee empathy (e g , Tax, Brown, and Chandrashekaran 1998), employee politeness (e g , Goodwin and Ross 1989), and employee effort (i e , the amount of energy spent to solve a problem, e g , Smith, Bolton, and Wagner 1999) "Distributive justice" describes the fairness of the complaint outcome as the customer perceives it It includes the facets of equity (i e , whether the firm and the complainant obtain the same outcome-to-input ratio,[1] e g , Tax, Brown, and Chandrashekaran 1998), equality (i e , whether the complainant receives the same outcome compared with prior complaint experiences with the company, e g , Tax, Brown, and Chandrashekaran 1998), and need consistency (i e , whether the outcome meets the requirements of the complainant, e g , Smith, Bolton, and Wagner 1999)

Constructs Related to Customer Satisfaction Evaluations and Loyalty

"Complaint satisfaction" refers to the degree to which the complainant perceives the company's complaint-handling performance as meeting or exceeding his or her expectations (e g , Gilly and Gelb 1982, McCollough, Berry, and Yadav 2000) "Overall customer satisfaction after the complaint" refers to the degree to which the complainant perceives the company's general performance in a business relationship as meeting or exceeding his or her expectations (e g , Anderson and Sullivan 1993) This type of satisfaction is cumulative in nature, whereas complaint satisfaction reflects a form of transaction-specific satisfaction (e g , Bolton and Drew 1991, McCollough, Berry, and Yadav 2000) "Customer loyalty after the complaint" refers to the degree to which a customer has continued the relationship with a company after the complaint and the degree to which he or she intends to do so in the future

Hypotheses Development

Hypotheses Related to Main Effects

According to the behavioral theory of the firm, guidelines can influence employees to act as the company desires them to act (e g , March and Simon 1993, Simon 1997) Moreover, guidelines can increase role clarity by informing customer-contact employees how to perform their jobs (e g , Cummings, Jackson, and Olstrom 1989, Michaels, Day, and Joachimsthaler 1987) The more such guidelines are customer oriented, the lower are employees' perceptions of incompatibility between role expectations from managers and customers, respectively, thus reducing role conflict (for empirical evidence, see Singh, Verbeke, and Rhoads 1996) High levels of role clarity and low levels of role conflict enhance employees' ability to serve customers, thereby improving customer evaluations (Chebat and Kollias 2000, Hartline and Ferrell 1996) Thus, in line with complaint literature (Davidow 2003, Sparks and McColl-Kennedy 2001), we argue (on a general level) that the quality of guidelines for complaint handling positively affects customer justice evaluations of complaint handling by ensuring customer-oriented employee behavior

For example, the quality of process guidelines is related to time standards and thus is positively linked to the actual speed of complaint handling Moreover, this construct includes instructions to increase the likelihood that staff will provide timely feedback to customers about the status of their complaints Such feedback improves customers' perceptions of how quickly their complaint is handled (Gilly 1987) Together, this supports our prediction that the quality of process guidelines increases the perceived timeliness of complaint handling and thus procedural justice This conclusion is also in line with Smith, Bolton, and Wagner's (1999) experimental findings Furthermore, instructions to record and forward complaints in a complete and structured manner enhance the probability that staff will give complainants the opportunity to explain their problem, thereby increasing customer perceptions of process control This conclusion is supported by empirical results that show that "voice" (i e , customers' chance to communicate their problems to the company) enhances procedural justice (Goodwin and Ross 1992, Hui and Au 2001)

The mere existence of behavioral guidelines for complaint handling shows staff the importance of their interaction style with complaining customers Combined with a customer-oriented content, this contributes to an adequate interpersonal treatment of complainants (Bailey 1994, Berry 1995) and, in turn, to customer perceptions of empathy, politeness, and effort In support of this view, empirical studies indicate that employees' customer-oriented interaction style enhances perceived fairness of complaint handling (Goodwin and Ross 1989, Maxham and Netemeyer 2003) and customer satisfaction (e g , Bitner, Booms, and Tetreault 1990)

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[1] The complainant's outcome may include, for example, correction, replacement, discount, or refund His or her input represents the financial and nonfinancial loss caused by the problem and the subsequent complaint statement

By empowering and encouraging employees to provide generous redress, outcome guidelines increase the probability that complainants will receive fair compensation (e g , Berry, Zeithaml, and Parasuraman 1990) In turn, this enhances customer perceptions of equity (e g , Smith, Bolton, and Wagner 1999) Furthermore, by adhering to outcome guidelines, staff are likely to provide similar forms and levels of compensation across complainants and over time (Sparks and McColl-Kennedy 2001), thereby increasing customers' perceived equality of the complaint outcome (Tax, Brown, and Chandrashekaran 1998) Moreover, staff's decision authority to award a satisfactory compensation and the instruction to offer redress according to customers' wishes increase the likelihood that employees will fulfill complainants' requirements (Chebat and Kollias 2000, Hart, Heskett, and Sasser 1990) In turn, this leads to customer perceptions of need consistency (Smith, Bolton, and Wagner 1999) In summary, we predict the following

> H_1 There is a positive impact of the quality of (a) process guidelines for complaint handling on perceived procedural justice, (b) behavioral guidelines for complaint handling on perceived interactional justice, and (c) outcome guidelines for complaint handling on perceived distributive justice

The behavioral theory of the firm suggests that by training and motivating employees and by indoctrinating them with shared values and norms, they can be influenced "to make decisions as the organization would like [them] to decide" (Simon 1997, p 112) In addition, by clarifying expectations about how to act as an organizational member, the internal environment increases staff perceptions of role clarity (Zeithaml, Berry, and Parasuraman 1988) Moreover, in line with Singh, Verbeke, and Rhoads (1996), we argue that the more the internal environment supports customer-oriented complaint handling, the less likely employees are to perceive incompatibility between role expectations from the internal environment and complainants, respectively, thus reducing role conflict In turn, high levels of role clarity and low levels of role conflict increase staff ability to serve customers, thereby improving customer evaluations (Chebat and Kollias 2000, Hartline and Ferrell 1996)

More specifically, with respect to a firm's HRM, studies show that adequate staff training and leadership behavior enhance perceived role clarity and reduce perceived role conflict (e g , Kohli 1985, Shoemaker 1999) as well as contribute to employees' customer-oriented behavior in general (e g , Gronroos 2000, Jaworski and Kohli 1993) and customer-oriented handling of complaints in particular (e g , De Ruyter and Brack 1993) In turn, this increases customer satisfaction in general (e g , Heskett et al 1994) and complainants' perceptions of procedural, interactional, and distributive justice in particular (e g , Maxham and Netemeyer 2003)

Perceptions of a firm's culture indicate to employees what is expected of them (Gronroos 2000, Heide and John 1992), thus further contributing to role clarity (e g , Jones, Busch, and Dacin 2003) The more that customer-contact staff perceive their firm's culture to be customer oriented, the lower is perceived role conflict and the stronger is customer-oriented behavior (e g , Siguaw, Brown, and Widing 1994), resulting in higher levels of customer satisfaction (e g , Humphreys and Williams 1996) In addition to the importance of a corporate culture's general customer orientation (e g , Cook and Macaulay 1997), complaint literature also emphasizes the particular relevance of a positive attitude toward complaints (e g , Johnston 2001) and of a constructive attitude toward failures (e g , Tax and Brown 1998) The presence of such attitudes is likely to lead to corresponding employee behavior (e g , Kraus 1995), which in turn ensures customer perceptions of a fair complaint-handling process, interpersonal treatment, and complaint outcome (e g , Maxham and Netemeyer 2003) Against this background, we hypothesize the following

> H_2 The supportiveness of the internal environment with respect to complaint handling has a positive impact on (a) perceived procedural justice, (b) perceived interactional justice, and (c) perceived distributive justice

To establish a causal chain between the two fundamental approaches of complaint handling and their ultimate outcome (i e , customer loyalty), our model includes several additional effects However, because these effects are well established in the literature, we do not develop explicit hypotheses for them Specifically, our model includes (presumably positive) effects of customer justice evaluations of complaint handling on complaint satisfaction (e g , Smith, Bolton, and Wagner 1999), an (presumably positive) effect of complaint satisfaction on overall customer satisfaction (e g , McCollough, Berry, and Yadav 2000) and customer loyalty (e g , Gilly and Gelb 1982), respectively, and a (presumably positive) link between overall customer satisfaction and customer loyalty (e g , Mittal, Ross, and Baldasare 1998)

Hypotheses Related to Moderating Effects

Supportiveness of internal environment We argue that the more a firm has succeeded in establishing an internal environment that favors effective complaint handling, the less it needs customer-oriented guidelines to define how complaints should be handled This is consistent with writings on the behavioral theory of the firm For example, Simon (1997, p 311) stresses that the effectiveness of approaches to influence staff behavior, such as implementing guidelines, depends on "the training and competence of the employees," which represents a key facet of the internal environment More specifically, the more staff are trained and competent, the less a firm needs specific guidelines and other forms of instructions (Simon 1997) Role theory also supports this reasoning As we mentioned previously, in a company with an internal environment that clearly favors a customer-oriented handling of complaints, there is a high level of perceived role clarity and a low level of perceived role conflict among complaint-handling staff Therefore, in such a case, there is less of a need to implement specific guidelines to clarify that complaints should be handled in a customer-oriented way Therefore, we predict the following

> H_3 The supportiveness of the internal environment with respect to complaint handling has a negative moderating

effect on the relationship between the quality of (a) process guidelines for complaint handling and perceived procedural justice, (b) behavioral guidelines for complaint handling and perceived interactional justice, and (c) outcome guidelines for complaint handling and perceived distributive justice

Type of business (B2B versus B2C) Theoretical (e g , Cooke 1986, Lilien 1987) and empirical (e g , Avlonitis and Gounaris 1997, Coviello and Brodie 2001) work support the notion that business markets differ from consumer markets along several dimensions, leading to various degrees of effectiveness of marketing management approaches depending on the type of business (i e , B2B or B2C) Characteristics of business markets include, among others, a small number of customers, long-term business relationships, and a high degree of interaction between members of the supplier and the customer company (e g , Nielson 1998, Webster 1978)

In line with resource dependence theory (e g , Pfeffer and Salancik 1978), we argue that in business markets, the smaller number of customers and the prospect of a long-term relationship lead to a greater dependence of firms on individual customers Therefore, to maintain the relationship, staff in B2B companies are likely to provide fair complaint treatment even if there are little guidelines for complaint handling Thus, there is less of a need for firms that operate in business markets to ensure fair complaint handling by establishing specific guidelines

Moreover, because of the intensive interaction in long-term B2B relationships, there are often established communication patterns (e g , Hillebrand and Biemans 2003) and behavioral norms (e g , Heide and John 1992) in these relationships This view is supported by Campbell (1998, p 199), who describes interaction in B2B relationships as "shaped by accepted social guidelines or norms which have become institutionalized" In this case, complaint-handling guidelines, which are relatively standardized across customers, can even have detrimental effects because their content may contradict existing communication patterns and behavioral norms

In addition, because of the smaller number of customers, the long-term character of relationships, and the higher degree of interaction, a typical "industrial company is often more knowledgeable about its customers and their needs than is the typical consumer company" (Webster 1978, p 22) Thus, in line with role theory, staff in B2B firms are typically less uncertain about how to deal with a complainant, which results in higher levels of role clarity Thus, in a B2B context, specific guidelines are necessary to a lesser extent Therefore, we predict the following

H_4 In a B2B context, the impact of the quality of (a) process guidelines for complaint handling on perceived procedural justice, (b) behavioral guidelines for complaint handling on perceived interactional justice, and (c) outcome guidelines for complaint handling on perceived distributive justice is weaker than it is in a B2C context

In contrast, we believe that the importance of a favorable internal environment with respect to complaint handling does not depend on the business context but rather should be the same in B2B and B2C settings Thus, we do not find compelling arguments for why the type of business may also moderate the effect of the internal environment on perceived justice However, we also explore this issue empirically

Type of industry (service versus manufacturing) In the marketing literature, the inherent differences between services and goods and the resulting implications for marketing management are widely accepted (e g , Lovelock 1981, Zeithaml and Bitner 2000) Two characteristics of services, the inseparability of production and consumption and the high degree of heterogeneity (e g , Zeithaml, Parasuraman, and Berry 1985), are particularly relevant for our study

The inseparability of production and consumption implies that customers must be present during the service production process, which leads to a high degree of personal interaction with service employees Thus, in a service context, a significant part of complaints is voiced in a face-to-face situation in which frontline staff have considerable freedom in terms of how they react In addition, the physical presence of the customer typically demands a quick reaction (e g , Gronroos 1988) Because stress situations such as these increase the likelihood that employees make mistakes (e g , Sales 1970), adequate guidelines for complaint handling are particularly important in a service setting Moreover, Goodwin and Ross (1990, p 59) show that complainants perceive that "they were treated more fairly when they believed the provider followed company procedure, as opposed to circumstances when they believed the provider's decision was ad hoc or arbitrary" Because service customers are more often physically present when their complaint is handled, they are more likely to notice whether employees follow specific company procedures, which in turn leads to the stronger impact of complaint-handling guidelines in a service context

A further characteristic of services is the high degree of heterogeneity in terms of performance output This is especially an issue for personnel-intensive services because "[m]any different employees may be in contact with an individual customer, raising a problem of consistency of behavior" (Langeard et al 1981, p 16) Moreover, "[p]eople's performance day in and day out fluctuates up and down" (Knisely 1979, p 58) Combined with customers' need to be involved in the service delivery process, these issues enhance customers' perceptions of the risk associated with a problem (e g , Guseman 1981, Murray and Schlacter 1990) Thus, in the case of a service failure, a firm's reliability with respect to complaint-handling performance is particularly relevant to customers, which is consistent with empirical research that emphasizes reliability as a key dimension of perceived service quality (e g , Zeithaml, Parasuraman, and Berry 1990) Several authors (e g , March 1994, March and Simon 1993) stress that guidelines can increase the reliability of employee behavior In turn, perceptions of reliability enhance customer justice evaluations (Leventhal 1980) Thus, in line with literature that stresses the importance of task standardization in a service context (e g , Zeithaml, Berry, and Parasuraman 1988), we expect guidelines for complaint handling to be more relevant for service companies. Thus, we hypothesize the following:

H_5: For service firms, the impact of the quality of (a) process guidelines for complaint handling on perceived procedural justice, (b) behavioral guidelines for complaint handling on perceived interactional justice, and (c) outcome guidelines for complaint handling on perceived distributive justice is stronger than it is for manufacturing firms.

However, we regard a favorable internal environment with respect to complaint handling as equally important in all types of industry. Thus, in our view, there are no persuasive arguments for why the distinction between service and manufacturing firms should also moderate the effect of the supportiveness of the internal environment on perceived justice. Nevertheless, we also analyze this issue empirically.

Methodology

Data Collection and Sample

In the first phase, we identified a company sample (1786 firms) using data from a commercial provider. The sample covered a broad range of services and manufacturing industries and was restricted to firms with at least 200 employees and an annual revenue of at least $50 million. For 1707 firms, we succeeded in identifying the manager with primary responsibility for complaint management. Subsequently, a questionnaire was sent to these managers. After three weeks, we followed up with telephone calls. As a result, we received 379 useable questionnaires, resulting in a reasonable response rate of 22.2%. We assessed nonresponse bias by comparing early with late respondents (Armstrong and Overton 1977). Moreover, we examined whether the firms we initially addressed and the responding firms differed in terms of size or industry. The findings provide evidence that nonresponse bias is not a problem with the data.

In the second phase, we contacted the responding 379 managers again and requested a list of ten customers who had complained to their firm within the past three months and who had been typical with respect to the reason for complaint, importance to the company, and type of customer. Incentives for managers included a report about customer feedback (on an aggregate basis) and the free participation in a conference on complaint management. In total, 110 managers provided this information, resulting in a response rate of 29.0%. Given the high confidentiality of customer information, this can be considered a satisfactory response. Reasons for declining included legal issues, general firm policies, and lack of support from top management.

In the third phase, we conducted telephone interviews with complainants. For the purpose of motivation, we assured customers that the company in question would receive their feedback in an anonymous form, which in turn might contribute to preventing the problem they had experienced from reoccurring. We achieved our goal of obtaining responses from five complainants per company for all 110 firms. This resulted in a total of 550 interviews with customers.

For subsequent data analysis, we averaged the five customer responses for each firm.[2] Thus, our data analysis is based on 110 dyads. Each dyad consists of a managerial assessment of the firm's complaint handling and five customer assessments related to perceived justice, satisfaction, and loyalty. Table 1 provides information about the company sample.

Measure Development and Assessment

We followed standard psychometric scale development procedures (Gerbing and Anderson 1988). We created scales based on a literature review and interviews with 12 practitioners. All items (including selected sources used for scale development) appear in the Appendix.

For measuring the quality of guidelines for complaint handling and the supportiveness of the internal environment with respect to complaint handling, we created new scales because of the lack of existing scales related to a firm's complaint handling. These scales compile aspects that are discussed independently in different studies. Using a seven-point rating scale, we measured each of the three constructs related to the quality of guidelines with six items. With respect to the supportiveness of the internal environment, we also used a seven-point rating scale. Originally, we intended to use 20 items for measuring this construct. However, to establish an internally consistent scale, we eliminated 1 item (which was related to financial rewards for staff with complaint management tasks), which resulted in a total of 19 items. We measured the constructs related to customer justice and satisfaction evaluations as well as customer loyalty on a five-point rating scale. Building on prior research, we operationalized procedural, interactional, and distributive justice with three, five, and four items, respectively, and we assessed complaint satisfaction, overall customer satisfaction, and customer loyalty with three items. With respect to the type of business, we asked firms to indicate the share of their business that comes from business customers. Thus, this moderator variable is continuous rather than binary. To categorize service and manufacturing companies, we used our industry measure (see Table 1). Summary statistics, including means and standard deviations of all constructs (overall and by industry), appear in Table 2.

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[2] Such data aggregation may be problematic if there is high variance in judgments related to the same firm. To explore this issue, we computed the intraclass correlation coefficient (ICC) (1) for each variable measured on the customer side. This measure can be used to assess the relative consistency of responses among raters (e.g., Bartko 1976; Kozlowski and Hattrup 1992). Therefore, ICC (1) is recommended in the literature as a criterion for judging the extent to which data aggregation across respondents is adequate (e.g., James 1982). In our study, ICC (1) values range from .22 to .29, which can be considered relatively large (e.g., Bliese 2000; James 1982). Thus, these results indicate a good consistency of responses among customers reporting on the same firm. On the basis of these results and in line with previous studies that use ICC (1) as a criterion for aggregating individual responses (e.g., De Jong, De Ruyter, and Lemmink 2004), we believe that our approach of averaging the five customer responses for each company is justified.

TABLE 1
Company Sample Composition (110 cases)

A: Industry	**%**
Manufacturing Sector	
Machine building	14
Chemicals/pharmaceuticals	12
Automotive	12
Electronic	11
Metal processing	11
Service Sector	
Banking/insurance	16
Retailing	14
Transport	5
Others	5

B: Position of Respondents	**%**
Head of complaint management	23
Head of quality management	23
Head of customer service	16
Vice president of marketing, vice president sales	15
Managing director, chief executive officer, head of strategic business unit	13
Others	9
Missing	1

C: Annual Revenues	**%**
<$50 million	4
$50–$99 million	16
$100–$199 million	26
$200–$499 million	18
$500–$999 million	16
$1,000–$2,000 million	6
>$2,000 million	6
Missing	8

D. Number of Employees	**%**
<200	6
200–499	17
500–999	26
1000–2499	22
2500–5000	16
>5000	12
Missing	1

Using confirmatory factor analysis, we assessed measurement reliability and validity for each factor. Overall, the results indicate acceptable psychometric properties (see the Appendix). Each construct manifests a composite reliability greater than the recommended threshold value of .6 (Bagozzi and Yi 1988). In addition, for all constructs, the coefficient alpha values exceed .8, thus providing evidence for a high degree of internal consistency among the corresponding indicators (Nunnally 1978). For each pair of constructs, we assessed discriminant validity on the basis of Fornell and Larcker's (1981) criterion (see Table 3) and on the chi-square difference test (e.g., Bollen 1989). The results indicate that there are no problems with respect to discriminant validity.

Results

Results Related to Main Effects

We estimated the main effects using LISREL 8.54 (Joreskog and Sorbom 1996). The overall fit measures indicate that the hypothesized model is a good representation of the structures underlying the observed data (χ^2/degrees of freedom = 1.99, goodness-of-fit index = .93, adjusted goodness-of-fit index = .93, comparative fit index = 1.00, and root mean square error of approximation [RMSEA] = .096).[3] Figure 2 displays the results of the hypotheses testing. Solid arrows refer to explicitly hypothesized effects, and dashed arrows represent links established in prior research.

H_{1a}, H_{1b}, and H_{1c} predict a positive effect of the quality of a company's guidelines for complaint handling on customer justice evaluations with respect to complaint handling. Each of these hypotheses is confirmed because each of the parameter estimates is positive and significant at the .01 level. From a conceptual point of view, these findings support the relevance of the mechanistic approach to complaint handling. Similarly, we find support for H_{2a}, H_{2b}, and H_{2c}, which suggest a positive impact of the supportiveness of the internal environment on customer justice evaluations. All three parameter estimates are positive and significant at least at the .05 level, thus confirming the relevance of the organic approach in the context of complaint handling.

The findings we have reported so far refer to hypotheses in which we measured dependent and independent constructs on different sides of the dyad. We believe that the confirmation of these hypotheses by data that cross the boundaries of the firm provides strong empirical support for our theoretical reasoning. It is also worthwhile to note that the explanatory power of the model with respect to customer justice evaluations is fairly high (r^2 values of .39, .56, and .57). This is remarkable in the context of dyadic data because a possible common method bias has been ruled out.

With respect to the additional (not explicitly hypothesized) effects, our results confirm the presumed positive relationships between customer justice evaluations and complaint satisfaction ($p < .01$) and the expected positive impact of complaint satisfaction on overall customer satisfaction ($p < .01$) and loyalty ($p < .01$), respectively. However, we fail to find statistical support for the predicted positive link between overall customer satisfaction and loyalty ($p > .10$).

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[3] It is worth emphasizing that, all other things being equal, the RMSEA value decreases (i.e., becomes better) as the sample size increases (e.g., Hu and Bentler 1999; Rigdon 1996). Thus, our value, which might be considered a bit high, can be largely attributed to the relatively small sample size. Because the threshold value of .08 typically suggested in the literature (e.g., Browne and Cudeck 1993) does not take into account the sample size (which is considered problematic, e.g., Rigdon 1996) and in line with studies considering values up to .10 as reasonable (e.g., MacCallum, Browne, and Sugawara 1996; Steiger 1989), we believe that our RMSEA value indicates an acceptable fit of the model.

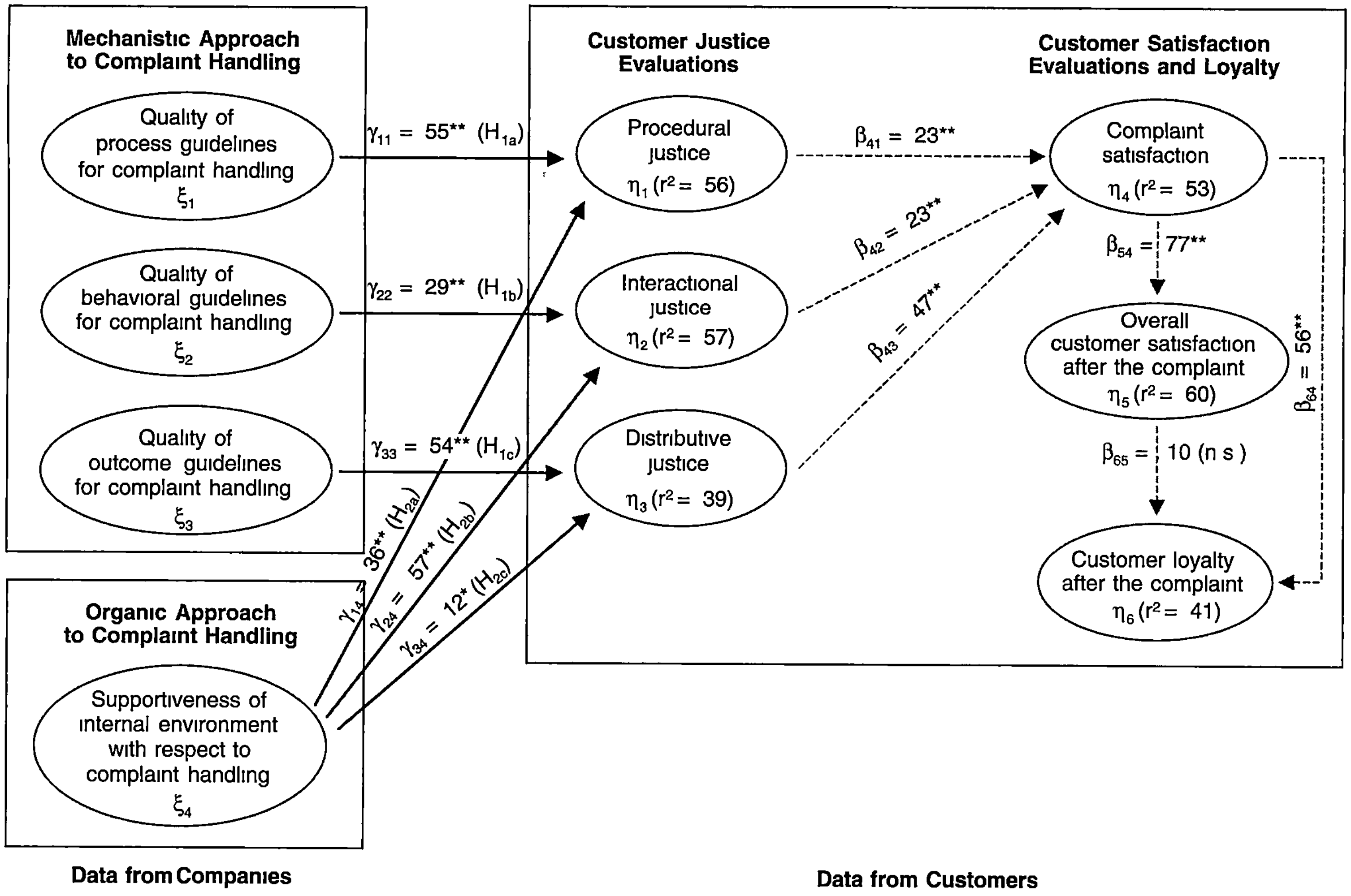
TABLE 2
Summary Statistics

		Mean (Standard Deviation)									
	Range	Overall	Machine Building	Chemicals/ Pharmaceuticals	Automotive	Electronic	Metal Processing	Banking/ Insurance	Retailing	Transport	Others
1 Quality of process guidelines for complaint handling	1–7	5 32 (1 31)	4 84 (1 47)	5 95 (85)	5 13 (1 01)	5 14 (1 30)	5 14 (1 25)	5 78 (1 49)	5 17 (1 34)	5 89 (66)	4 81 (1 85)
2 Quality of behavioral guidelines for complaint handling	1–7	5 40 (1 34)	5 27 (1 28)	5 62 (1 06)	5 31 (1 38)	5 35 (1 32)	4 74 (1 63)	5 77 (1 56)	5 53 (1 24)	5 75 (83)	5 08 (1 50)
3 Quality of outcome guidelines for complaint handling	1–7	4 77 (1 29)	5 39 (58)	5 08 (1 00)	4 90 (96)	4 60 (1 59)	4 76 (1 34)	4 16 (1 56)	5 17 (1 03)	4 44 (1 62)	3 83 (1 70)
4 Supportiveness of internal environment with respect to complaint handling	1–7	4 71 (95)	4 84 (77)	4 86 (1 20)	4 65 (48)	4 85 (85)	5 03 (91)	4 53 (1 09)	4 76 (91)	4 18 (89)	4 23 (1 51)
5 Procedural justice	1–5	3 72 (67)	3 74 (47)	4 14 (45)	3 76 (68)	3 77 (66)	3 66 (52)	3 52 (80)	3 73 (65)	3 71 (87)	3 22 (1 05)
6 Interactional justice	1–5	4 05 (60)	4 28 (33)	4 18 (75)	4 24 (41)	4 10 (58)	4 14 (41)	3 79 (56)	3 94 (68)	4 01 (66)	3 51 (96)
7 Distributive justice	1–5	3 39 (83)	3 51 (40)	4 09 (32)	3 49 (84)	3 61 (69)	3 65 (55)	2 74 (1 00)	3 42 (77)	2 89 (1 07)	2 84 (1 04)
8 Complaint satisfaction	1–5	3 54 (74)	3 70 (44)	4 07 (43)	3 50 (86)	3 74 (61)	3 53 (51)	3 07 (84)	3 62 (77)	3 34 (97)	3 11 (90)
9 Overall customer satisfaction after the complaint	1–5	3 90 (62)	4 10 (55)	4 31 (33)	3 62 (67)	4 01 (51)	4 00 (38)	3 46 (81)	4 14 (56)	3 62 (39)	3 77 (48)
10 Customer loyalty after the complaint	1–5	4 29 (65)	4 58 (38)	4 73 (45)	4 30 (52)	4 31 (59)	4 47 (39)	3 92 (75)	3 72 (80)	4 83 (18)	4 14 (43)

TABLE 3
Average Variances Extracted and Squared Correlations

	Average Variance Extracted	Squared Correlations									
		1	2	3	4	5	6	7	8	9	10
		(.58)	(.65)	(.49)	(.42)	(.76)	(.73)	(.69)	(84)	(.85)	(.80)
1 Quality of process guidelines for complaint handling	(58)	—									
2 Quality of behavioral guidelines for complaint handling	(65)	53	—								
3 Quality of outcome guidelines for complaint handling	(49)	17	21	—							
4 Supportiveness of internal environment with respect to complaint handling	(42)	12	20	28	—						
5 Procedural justice	(76)	30	32	29	18	—					
6 Interactional justice	(73)	11	24	25	41	48	—				
7 Distributive justice	(69)	06	08	33	16	45	30	—			
8 Complaint satisfaction	(84)	05	11	17	07	63	38	56	—		
9 Overall customer satisfaction after the complaint	(85)	01	08	12	08	30	29	34	49	—	
10 Customer loyalty after the complaint	(80)	02	07	07	05	15	26	16	26	24	—

FIGURE 2
Results of the Hypotheses Testing (Main Effects)


Mechanistic Approach to Complaint Handling
Quality of process guidelines for complaint handling ξ_1
Quality of behavioral guidelines for complaint handling ξ_2
Quality of outcome guidelines for complaint handling ξ_3
Organic Approach to Complaint Handling
Supportiveness of internal environment with respect to complaint handling ξ_4
Data from Companies
γ_{11} = 55** (H_{1a})
γ_{22} = 29** (H_{1b})
γ_{33} = 54** (H_{1c})
γ_{14} = 36** (H_{2a})
γ_{24} = 57** (H_{2b})
γ_{34} = 12* (H_{2c})
Customer Justice Evaluations
Procedural justice η_1 (r^2 = 56)
Interactional justice η_2 (r^2 = 57)
Distributive justice η_3 (r^2 = 39)
β_{41} = 23**
β_{42} = 23**
β_{43} = 47**
Customer Satisfaction Evaluations and Loyalty
Complaint satisfaction η_4 (r^2 = 53)
β_{54} = 77**
Overall customer satisfaction after the complaint η_5 (r^2 = 60)
β_{65} = 10 (n s)
Customer loyalty after the complaint η_6 (r^2 = 41)
β_{64} = 56**
Data from Customers

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*$p < 05$
**$p < 01$
Notes Completely standardized coefficients are shown, n s = not significant

Results Related to Moderating Effects

Because the moderator variables supportiveness of the internal environment and type of business are continuous, we tested the hypotheses with respect to these effects using moderated regression analysis We averaged all scales to form a composite As several authors (e g , Aiken and West 1993, Cohen et al 2002) suggest, we standardized the predictor variables by mean centering Then, we computed interaction terms by taking the product of the mean-centered predictor variables The results of the moderator analyses appear in Table 4

H_{3a}, H_{3b}, and H_{3c} predict that the supportiveness of the internal environment negatively moderates the impact of complaint-handling guidelines on perceived justice The results show that as we expected, in all three equations, the estimates of the predictors are positive, and the interaction effects are negative This pattern indicates an antagonistic interaction and thus a compensatory effect of the predictors on the dependent variable (e g , Cohen et al 2002, Neter et al 1996) In other words, the slopes of the three regression lines that reflect the impact of complaint-handling guidelines on perceived justice are not constant across all values of the supportiveness of the internal environment Rather, the greater the supportiveness of the internal environment, the smaller is the effect of complaint-handling guidelines on perceived justice More specifically, the greater the supportiveness of the internal environment, the smaller is the impact of the quality of behavioral guidelines on interactional justice ($p <$ 01), which is consistent with H_{3b} Moreover, the greater the supportiveness of the internal environment, the smaller is the effect of the quality of outcome guidelines on distributive justice ($p <$ 10), which provides (weak) support for H_{3c} However, there is no statistical support for H_{3a}, which predicts that the greater the supportiveness of the internal environment, the smaller is the impact

TABLE 4
Results of the Hypotheses Testing (Moderating Effects)

		Dependent Variable		
		Procedural Justice	**Interactional Justice**	**Distributive Justice**
Supportiveness of Internal Environment as Moderator				
Main Effects				
Quality of process guidelines		44***		
Quality of behavioral guidelines			17**	
Quality of outcome guidelines				47***
Internal environment		28***	56***	12*
Interaction Effects				
Quality of process guidelines × internal environment	(H_{3a})	– 07 (n s)		
Quality of behavioral guidelines × internal environment	(H_{3b})		– 26***	
Quality of outcome guidelines × internal environment	(H_{3c})			– 10*
Type of Business (B2B Versus B2C) as Moderator				
Main Effects				
Quality of process guidelines		54***		
Quality of behavioral guidelines			52***	
Quality of outcome guidelines			51***	
B2B share		17**	29***	25***
Interaction Effects				
Quality of process guidelines × B2B share	(H_{4a})	– 13**		
Quality of behavioral guidelines × B2B share	(H_{4b})		– 03 (n s)	
Quality of outcome guidelines × B2B share	(H_{4c})			– 11*
Type of Industry (Service Versus Manufacturing) as Moderator				
Quality of process guidelines (service sector)	(H_{5a})	66***		
Quality of process guidelines (manufacturing sector)		51***		
		(F = 4 89***)		
Quality of behavioral guidelines (service sector)	(H_{5b})		63***	
Quality of behavioral guidelines (manufacturing sector)			49***	
			(F = 12 43***)	
Quality of outcome guidelines (service sector)	(H_{5c})			68***
Quality of outcome guidelines (manufacturing sector)				37***
				(F = 10 56***)

*$p <$ 10
**$p <$ 05
***$p <$ 01
Notes Unstandardized coefficients are shown, n s = not significant

of the quality of process guidelines on procedural justice ($p >$ 10)

With respect to the type of business, we predicted that the B2B share would negatively moderate the effect of the quality of complaint-handling guidelines on perceived justice (H_{4a}, H_{4b}, and H_{4c}) Findings show that as we expected, in all three equations, the coefficients of the predictors are positive, and the interaction effects are negative This indicates that the greater the B2B share, the smaller is the impact of complaint-handling guidelines on perceived justice Regarding H_{4a}, we find a significant interaction effect ($p <$ 05), which provides statistical support for our prediction that the greater the B2B share, the smaller is the impact of the quality of process guidelines for complaint handling on procedural justice Furthermore, our results provide (weak) support for H_{4c} ($p <$ 10), thus confirming our notion that the greater the B2B share, the smaller is the effect of the quality of outcome guidelines for complaint handling on distributive justice However, with respect to H_{4b}, we do not observe a significant interaction effect ($p >$ 10) Therefore, there is no statistical support for our prediction that the greater the B2B share, the smaller is the impact of the quality of behavioral guidelines for complaint handling on interactional justice [4] Although we did not formulate hypotheses about the moderating effects of the type of business on the relationship between the supportiveness of the internal environment with respect to complaint handling and perceived justice, we did investigate it As we expected, the three interaction effects were all nonsignificant ($p >$ 10)

Regarding the type of industry, H_{5a}, H_{5b}, and H_{5c} predict a stronger impact of the quality of complaint-handling guidelines on perceived justice for service firms than for manufacturing firms Because this moderator variable is categorical, we ran separate regression analyses for both types and tested the significance of differences between corresponding parameter estimates using a Chow test (e g , Chow 1960) As we expected, in each of the three pairs of equations, the coefficient for service firms is larger In addition, these differences are all highly significant ($p <$ 01) Thus, our results show that the quality of the three types of guidelines for complaint handling has a stronger effect on corresponding customer justice evaluations in service firms than in manufacturing firms Although we did not put forward hypotheses regarding moderating effects of the type of industry on the link between the supportiveness of the internal environment and perceived justice, we also analyzed these effects As we anticipated, we did not find any significant effects ($p >$ 10)

Discussion

Research Issues

Our study advances academic understanding of a company's complaint management by introducing the distinction between the mechanistic and the organic approach A worthwhile issue for discussion based on our study is whether the two approaches are related in a complementary or compensatory way (i e , whether they supplement or exclude each other) Prior research in organizational theory (e g , March and Simon 1993, Simon 1997) does not take a firm stand on the relationship between these two approaches in influencing staff behavior For example, on the one hand, Simon (1997, p 310) states that "[t]o a very great extent, these forms of influence are interchangeable" On the other hand, he stresses (p 177) that "the several modes of influence by no means exclude one another" Thus, we believe that it is an important contribution to clarify this relationship within a specific context (i e , complaint management)

More specifically, we provide evidence for a primarily complementary nature of the relationship between the two approaches First, the complementary nature becomes evident because each approach significantly affects perceived justice, even when we control for the use of the other approach In other words, each approach explains variance in perceived justice that cannot be explained by the other approach Second, the finding that procedural and distributive justice are more strongly affected by the mechanistic approach whereas interactional justice is more strongly driven by the organic approach (see Figure 2) also emphasizes the complementary nature of the two approaches [5]

In this context, another important issue is the relative importance of the two approaches To analyze this issue, we computed the total effect on complaint satisfaction for each approach Based on the estimated parameters (see Figure 2), the mechanistic approach has a total effect of (55 × 23) + (29 × 23) + (54 × 47) = 45, whereas the organic approach has a total effect of (36 × 23) + (57 × 23) + (12 × 47) = 27 Thus, the mechanistic approach is more important insofar as it has a stronger impact on complaint satisfaction [6] This finding is particularly interesting considering that, in general, research on complaint management focuses more on HRM and cultural issues (i.e., the organic approach) than on specific guidelines for staff (i.e., the mechanistic approach). Our study indicates that research should pay more attention to the "hard factors" of complaint management (i.e., the implementation of guidelines).

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[4] A possible explanation (suggested by an anonymous reviewer) for not finding complete support for the hypothesized moderator effects of B2B share is the following In B2B settings, the existence of complaint-handling guidelines is more likely to be known to customers than in B2C settings It might be argued that the greater visibility of these guidelines in a B2B context would lead to a stronger impact on perceived justice Such an effect would run counter to our hypothesized negative moderator effects of B2B share

[5] It must be mentioned that our finding that the supportiveness of the internal environment negatively moderates the impact of guidelines on perceived justice does not contradict our conclusion that the relationship between the two approaches is essentially complementary We find that after the inclusion of these moderator effects in the regression models, the effects of guidelines remain significant (see Table 4) Thus, the organic approach weakens the impact of the mechanistic approach but not to the extent that it disappears

[6] On the basis of an anonymous reviewer's suggestion, we ran separate analyses for each approach to explore the relative importance of the two approaches further On an aggregate level (i e , when a single construct was built for the mechanistic approach and perceived justice, respectively), the results show that the mechanistic approach explains 38% of the variance of perceived justice, whereas the organic approach accounts for only 29% This finding further supports our statement that the mechanistic approach is a more important driver of complainants' evaluations

Moreover, we show that the mechanistic approach is more important in the B2C marketing context than in the B2B marketing context. This result is interesting in light of studies that question the relevance of the distinction between B2B and B2C marketing (e.g., Andrus and Norvell 1990; Coviello et al. 2002). Literature points to "a lack of consistent empirical support for the consumer/B2B dichotomy" and of studies that cover both B2B and B2C settings (Coviello and Brodie 2001, p. 389). Our study clearly indicates that for a specific context (i.e., complaint management), the B2B/B2C distinction has some relevance. In addition, we find that the relevance of the mechanistic approach is greater for service firms than for manufacturing firms. This adds to the discussion in the literature about differences between services and goods marketing (e.g., Lovelock 1981; Zeithaml and Bitner 2000) and helps redress the lack of empirical research in this area that several authors identify (e.g., Coviello et al. 2002). For a specific context (i.e., complaint management), we provide evidence that the services/goods distinction is indeed relevant for academic understanding of marketing practice.[7] Overall, by showing that guidelines have a greater impact in a B2C and service setting, our study contributes to the debate about the circumstances under which a high formalization of organizational policies and procedures for interacting with customers is particularly appropriate.

Finally, a result that is not related to the core of this article is also worth mentioning. We find that complaint satisfaction has a strong effect on customer loyalty, but the impact of overall customer satisfaction on customer loyalty is not significant. Thus, after a complaint, loyalty depends essentially on complaint satisfaction and not as much on satisfaction that has cumulated over time. It seems that immediately following a complaint, customers' perceptions are so dominated by the way their complaint was treated that complaint satisfaction becomes the main driver of loyalty. This further emphasizes the importance of effective complaint handling.

Limitations and Avenues for Further Research

First, although collecting data from 110 companies and their complaining customers required a lot of effort, our sample size is nevertheless relatively small. Thus, the RMSEA value of our model slightly exceeds the recommended threshold value (see n. 3), and the standard errors of the coefficients estimated using moderated regression analysis are rather large, resulting in two interaction effects that are significant only at the .10 level.

Second, we obtained responses from five complainants per company. In a B2B context, this may represent a reasonably high percentage of the total number of customers, but in a B2C context, it might be considered a relatively limited sample. Therefore, future studies should try to verify our results in a B2C context by obtaining responses from a larger number of customers.

Third, our study aimed to analyze the impact of the mechanistic and the organic approach to complaint handling on customer justice evaluations. In doing so, we did not explore a possible causality between the two approaches. Thus, further research should examine this issue in more detail. For example, it can be argued that the organic approach is an antecedent of the mechanistic approach because a company's culture may drive the implementation of guidelines. A longitudinal study would be the most appropriate way to address this issue.

Fourth, we believe that our differentiation between the mechanistic and the organic approach is also applicable to the study of other organizational phenomena in marketing, such as the antecedents of a company's market orientation. Therefore, further research might benefit from using this distinction between two fundamental approaches for influencing employee behavior.

Finally, we agree with Coviello and colleagues (2002, p. 36), who identify a lack of studies "that offer a comparison across consumer goods, consumer services, business goods, and business services firms." Thus, more empirical research should be conducted to gain further insight into similarities and differences in different business and industry settings.

Managerial Implications

A result that we consider relevant for managerial practice is related to the high importance of effective complaint management. This high importance is illustrated by our finding that customer loyalty after a complaint essentially depends on complaint satisfaction and is largely unaffected by overall customer satisfaction. In practical terms, this means that in the case of ineffective complaint handling, there is a high risk to lose even those customers who were previously highly satisfied. In other words, previous customer satisfaction does not provide a company a buffer against the consequences of ineffective complaint handling.

Our results also provide guidance on how to design a firm's complaint handling. Given the primarily complementary relationship between the mechanistic and the organic approach, our general advice for managers is to use the two approaches in combination. In particular, managers must be aware that some types of complainants' justice evaluations (i.e., procedural and distributive) can be largely influenced by establishing guidelines, whereas interactional justice can be better influenced by designing the internal environment in terms of HRM and corporate culture

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[7] Our results regarding the moderating effects of the type of business and the type of industry indicate that the strongest impact of the mechanistic approach on perceived justice should occur when the B2C and the service context are combined (i.e., for consumer services firms). On the basis of an anonymous reviewer's suggestion, we conducted further data analyses to explore this issue. More specifically, we computed a correlation coefficient between the aggregate measure of the mechanistic and the organic approach, respectively, and the aggregate measure of perceived justice. We did this for four settings: B2C/services, B2C/goods, B2B/services, and B2B/goods. Indeed, we found that the correlation coefficient for the mechanistic approach was by far the strongest for B2C/services (.67, $p < .01$). Yet it is noteworthy that even in this context, the organic approach has a significant correlation with perceived justice (.16, $p < .10$).

Our finding that the mechanistic approach has a stronger impact on customer evaluations than does the organic approach is also managerially relevant In line with other authors (e g , Jackson 2001), we believe that it has almost become a fashion in the managerial literature to emphasize the management of the soft factors, such as leadership and culture, at the expense of the hard factors, such as guidelines Our study shows that at least for the field of complaint management, the hard factors should receive a lot of managerial attention Conversely, some executives seem to rely almost exclusively on guidelines Our advice for these managers is to understand that guidelines cannot cover everything Especially for situations at the customer interface that are not (or cannot be) covered by guidelines, it is important to develop the soft factors that can serve as a safeguard in such circumstances to ensure effective complaint handling

Another important finding is related to the relevance of the mechanistic and the organic approach in different business and industry settings Whereas the organic approach seems to be equally important across different settings, we find that the impact of the mechanistic approach is strongest for firms marketing services to consumers (see n 7) Thus, for this type of company, a strong emphasis on the implementation of guidelines for complaint handling is especially recommended However, as we mentioned previously (see n 7), even for these firms, the organic approach is somewhat important because it has a significant impact on customer evaluations On a more general level, our study indicates that firms marketing services to consumers have a particularly strong need for relatively formal policies and procedures when interacting with customers

Our study also provides recommendations for companies that have not yet implemented guidelines for complaint handling Because outcome guidelines have the strongest total effect on complaint satisfaction (54 × 47 = 25), followed by process guidelines (55 × 23 = 13) and behavioral guidelines (29 × 23 = 07), we advise managers to focus resources at the beginning on the implementation of outcome guidelines and then follow up with the development of process guidelines This suggestion is particularly valid for firms with a highly supportive internal environment because in such a case, especially behavioral guidelines are less relevant Beyond following these general recommendations, managers may use our scales related to complaint-handling guidelines and the internal environment as a checklist to assess and improve systematically the quality of their company's complaint management

APPENDIX
Scale Items for Construct Measures

Construct	Items	CR/CA
Quality of process guidelines for complaint handling[a]	*To what extent do you agree with the following statements?* In our company/business unit, guidelines for registering and processing customer complaints •Are clearly defined •Are relatively simple •Include time standards that define the normal or maximum duration of the entire process •Include instructions to inform customers about the current status of their complaint within a reasonable period of time •Include instructions to record complaint information in a fast, complete, and structured manner •Include instructions to forward complaint information to the person in charge in a fast, complete, and structured manner (Selected sources Andreassen 2000, Bailey 1994, Berry 1995, Technical Assistance Research Program 1986)	89/ 88
Quality of behavioral guidelines for complaint handling[a]	*To what extent do you agree with the following statements?* In our company/business unit, guidelines for employees' behavior toward complaining customer •Are clearly defined •Are relatively simple •Include instructions to be polite and helpful •Include instructions to show concern and understanding •Include instructions to take responsibility for the problem •Include instructions to behave in a customer-oriented way (Selected sources Bailey 1994, Estelami 2000, Tax and Brown 1998)	92/ 91

APPENDIX
Continued

Construct	Items	CR/CA
Quality of outcome guidelines for complaint handling[a]	*To what extent do you agree with the following statements?* In our company/business unit, guidelines for providing compensation to complaining customers •Are clearly defined •Are relatively simple •Give employees who are responsible for complaint handling the decision authority which is necessary for a satisfactory problem resolution •Empower frontline employees to award redress up to a certain degree •Allow for a generous redress •Include instructions that the type of redress should be in line with complainants' needs (Selected sources Blodgett, Hill, and Tax 1997, Bowen and Lawler 1995, Hart, Heskett, and Sasser 1990, Mattila 2001, Palmer, Beggs, and Keown-McMullan 2000)	85/ 85
Supportiveness of internal environment with respect to complaint handling[a]	*To what extent do you agree with the following statements?* In our company/business unit, •The training of employees who are responsible for complaint management aims at assuring their sensitivity to the importance of customer complaints •Employees who are responsible for complaint management are trained how to deal with complaining customers •Managers regularly communicate complaint management goals, customer satisfaction goals, and customer retention goals to employees who are responsible for complaint management •Managers include complaint management goals, customer satisfaction goals, and customer retention goals into the target definition for employees who are responsible for complaint management •The performance evaluation of employees who are responsible for complaint management includes the achievement of complaint management goals, customer satisfaction goals, and customer retention goals •Employees are recognized for outstanding achievements regarding complaint management •Managers set a good example in terms of high customer orientation in general and effective complaint management in particular •Managers regularly communicate the benefits of an effective complaint management to employees who are responsible for complaint management •Managers are, with regard to customer complaints, primarily interested in preventing failures from reoccurring rather than blaming employees for problems •All employees display a high level of customer orientation •The thinking and actions center around the customer •Customer-oriented values and norms are deep-seated •Employees have a rather negative attitude toward customer complaints (R) •Employees tend to regard customer complaints as personal criticism rather than as an opportunity to restore customer satisfaction (R) •Managers tend to regard customer complaints as a result of own wrong decisions rather than as an opportunity to prevent failures from reoccurring (R) •Complaining customers are sometimes seen as trouble makers or petitioners (R) •Employees are not fully aware of the benefits of an effective complaint management (R) •Managers and employees openly talk about organizational problems and failures •Employees try to solve organizational problems and to prevent failures from reoccurring (Selected sources Berry and Parasuraman 1991, Cook and Macaulay 1997, De Ruyter and Brack 1993, Deshpandé and Webster 1989, Johnston 2001, Tax and Brown 1998)	93/ 93
Procedural justice[b]	*To what extent do you agree with the following statements?* •The company quickly reacted to my complaint •The company gave me the opportunity to explain my point of view of the problem •Overall, the company's complaint handling procedure was fair (Selected sources Smith, Bolton, and Wagner 1999, Tax, Brown, and Chandrashekaran 1998)	90/ 90

APPENDIX
Continued

Construct	Items	CR/CA
Interactional justice[b]	*To what extent do you agree with the following statements?* •The employees seemed to be very interested in my problem •The employees understood exactly my problem •I felt treated rudely by the employees (R) •The employees were very keen to solve my problem •Overall, the employees' behavior during complaint handling was fair (Selected sources McCollough, Berry, and Yadav 2000, Smith, Bolton, and Wagner 1999, Tax, Brown, and Chandrashekaran 1998)	93/ 93
Distributive justice[b]	*To what extent do you agree with the following statements?* •I received an adequate compensation from the company •I received about as much compensation from the company as in the context of previous complaints •In solving my problem, the company gave me exactly what I needed •Overall, the compensation I received from the company was fair (Selected sources Smith, Bolton, and Wagner 1999, Tax, Brown, and Chandrashekaran 1998)	90/ 89
Complaint satisfaction[b]	*To what extent do you agree with the following statements?* •I was not satisfied with the handling of my complaint (R) •I had a positive experience when complaining to this company •I was very satisfied with the complaint handling of the company (Selected sources Bitner and Hubbert 1994, Maxham and Netemeyer 2003, Tax, Brown, and Chandrashekaran 1998)	94/ 94
Overall customer satisfaction after the complaint[b]	*To what extent do you agree with the following statements?* •Overall, the purchase of the product from this company was a good decision •Overall, after the complaint, I was very satisfied with the company •Overall, so far, I have had positive experiences with this company (Selected sources Bitner and Hubbert 1994, Maxham and Netemeyer 2003)	94/ 94
Customer loyalty after the complaint[b]	*To what extent do you agree with the following statements?* •After the complaint, I purchased the product of this company again •It is very likely that I will purchase the product of this company again •I intend to remain loyal to this company in the future (Selected sources Gilly and Gelb 1982, Maxham and Netemeyer 2003)	92/ 92

[a] Seven-point rating scale, anchored by "strongly agree" and "strongly disagree"

[b] Five-point rating scale, anchored by "strongly agree" and "strongly disagree" Questions for consumers are shown, questions for business customers are identical except for minor wording changes (i e , "My company " rather than "I ")

Notes (R) = reversed item CR = composite reliability, CA = coefficient alpha

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Thomas S. Gruca & Lopo L. Rego

Customer Satisfaction, Cash Flow, and Shareholder Value

In this article, the authors strengthen the chain of effects that link customer satisfaction to shareholder value by establishing the link between satisfaction and two characteristics of future cash flows that determine the value of the firm to shareholders: growth and stability. Using longitudinal American Customer Satisfaction Index and COMPUSTAT data and hierarchical Bayesian estimation, the authors find that satisfaction creates shareholder value by increasing future cash flow growth and reducing its variability. They test the stability of findings across several firm and industry characteristics, and they assess the robustness of the results using multimeasure and multimethod estimation.

How does customer satisfaction create shareholder value? This is an important question for both top executives and marketing managers. Traditionally, the success of marketing actions has been evaluated by marketplace outcomes, such as sales or market share (Lehmann 2004). Today, however, top managers insist that every functional area has as its ultimate goal the creation of shareholder value (Day and Fahey 1988; Hunt and Morgan 1995).

Indeed, there is a great deal of empirical research showing that by satisfying customers, firms elicit desirable behaviors, such as increased loyalty, greater receptivity to cross-selling efforts, and positive word-of-mouth advertising (e.g., Anderson 1996; Fornell 1992; Fornell et al. 1996). Such behaviors translate into superior performance as measured by traditional metrics. Recently, a study by Anderson, Fornell, and Mazvancheryl (2004) found a positive association between a firm's current level of customer satisfaction and contemporaneous financial market measures, such as Tobin's q, stock, and market-to-book ratio. Although promising, the empirical research supporting the claim that customer satisfaction is a driver of shareholder value is incomplete. We must complete the chain of effects by forging a link between customer satisfaction and the characteristics of future cash flow that determine the value of the firm to shareholders (Rust et al. 2004).

Srivastava, Shervani, and Fahey (1998) develop a framework that links the market-based assets of customer and partner relationships to shareholder value using the discounted cash flow model of firm valuation (Kerin, Mahajan, and Varadarajan 1990; Rappaport 1986). They argue that beneficial effects of satisfaction on customer behavior result in increased cash flow growth and acceleration as well as reduction in cash flow volatility. These particular characteristics of future cash flows determine the value of a firm to its shareholders (Kerin, Mahajan, and Varadarajan 1990; Rappaport 1986). Therefore, to understand fully how customer satisfaction leads to increased shareholder value, it is necessary to understand how customer satisfaction translates into cash flows with desirable attributes (Rust et al. 2004). This is critical given the significant potential for trade-offs between increasing and stable cash flows. Our study details how customer satisfaction affects a firm's financial risk. To our knowledge, this is the first attempt to examine this important effect empirically.

In this article, we examine the relationship between customer satisfaction and future cash flows. By focusing on the effect of this relationship, we gain a more comprehensive understanding of how customer satisfaction increases shareholder value. The discounted cash flow model is among the most widely accepted valuation techniques in finance (Fernandez 2002; Rapapport 1986). Because chief financial officers (CFOs) use discounted cash flow methods in their own decision making (Ryan and Ryan 2002), our model of future cash flows provides marketing managers a common "language" with which to communicate the importance and impact of customer satisfaction to finance-oriented executives. Fostering such understanding has been a major concern of the Marketing Science Institute (2002, 2004) for several years.

Our focus on the impact of satisfaction on future cash flows is consistent with empirical research on its effect on consumer behavior. In satisfying a customer, a firm generates benefits for itself beyond the present transaction and current time period. In other words, the firm benefits from customer satisfaction primarily in the future, during the next buying opportunity (because of increased loyalty) or company-initiated contact (through an increased receptivity to cross-selling). Understanding how these benefits shape future cash flows provides managers with insights into the potential trade-offs between cash flow growth and stability.

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Furthermore, our results are highly actionable given the streams of research on how to measure (Fornell 1992, Fornell et al. 1996) and influence (Ambler et al. 2002, Syzmanski and Henard 2001) customer satisfaction.

This is an important topic for academics, practitioners, and investors. For academics, this study examines the suitability of customer satisfaction as a measure of the market-based asset of customer relationships. For managers, recognizing how customer satisfaction affects an organization's future cash flows can provide guidance for valuing alternative efforts that are intended to improve customer satisfaction. Finally, for investors, identifying the drivers of a firm's future cash flow is crucial for the accurate assessment of a firm's value to shareholders.

We organize this article as follows: First, we briefly review the customer satisfaction and shareholder value literature and summarize how these two constructs are linked. Second, we develop a set of models to examine the influence of customer satisfaction on cash flow growth and variability. Third, we describe the methodology we used and present the results. Finally, we discuss the implications of our findings and explore directions for further research.

Linking Customer Satisfaction to Shareholder Value

As the formal owners of the firm, shareholders are an important constituency whose interests should be included in a manager's evaluation of decision alternatives (Day and Fahey 1988). To align the interests of managers with those of the shareholders, boards of directors often link a large proportion of a top executive's pay to the firm's stock price through options or other stock price–related incentives (Guay 1999, Morgan and Poulsen 2001). Although increasing a firm's stock price is a seemingly obvious way to increase shareholder value, it has important limitations. The most obvious is the existence of a wide range of factors, many beyond the control of executives, that might influence the price of a stock (e.g., Lambert 2000, Lehmann 2004).

Despite the multiplicity of factors that influence day-to-day changes in a firm's stock price, its value can be more readily assessed by means of the discounted cash flow model (Fernandez 2002, Rappaport 1986). According to this valuation method, managers should aim to maximize future cash flows and to minimize the risks associated with those cash flows to maximize shareholder value (Rappaport 1986, Srivastava, Shervani, and Fahey 1998, 1999). A reduction in the variability of cash flows over time reduces the firm's cost of capital and creates shareholder value. Because future cash flows are discounted, a given level of current cash flow is preferred to that same amount at a future date. Thus, cash flow acceleration is a further source of shareholder value.

However, there are alternative measures of shareholder value. The most widely cited include Tobin's q (Anderson, Fornell, and Mazvancheryl 2004), price-to-book ratios (Erickson and Whited 2001), and economic value added (Ohlson 1995) as well as traditional financial metrics, such as return on assets (for an excellent review, see Rust, Lemon, and Zeithaml 2004). Our choice to measure shareholder value using future cash flows is motivated by its favorable characteristics. Future cash flow is a forward-looking measure that is comparable across firms and widely available, and its value can be determined unambiguously (Fernandez 2002).

Srivastava, Shervani, and Fahey (1998) suggest that market-based assets such as customer relationships create value for customers and thus result in improved marketplace performance and increased shareholder value. An important measure of the quality of a firm's relationship with its customers is embodied in assessments of customer satisfaction. As Fornell (2002, p. 41) notes, "satisfied customers can be viewed as economic assets that yield future cash flows." Next, we discuss the path from satisfaction to future cash flows.

By satisfying a customer, a firm generates benefits for itself beyond the present transaction and the current moment. These benefits arise from the positive shaping of the satisfied customer's future behavior. For example, satisfied customers are more loyal and increase their level of purchasing from the firm over time (Anderson and Sullivan 1993, Reichheld 1996, Reichheld and Sasser 1990). Some of this increased purchase level is due to satisfied customers being more receptive to cross-selling efforts (Fornell 1992). During future purchase occasions, satisfied customers are less likely to defect to competing products as a result of lower prices (Fornell et al. 1996). In addition, the positive word of mouth that satisfied customers generate influences other consumers' future purchases (Anderson 1996).

These positive behavioral consequences of satisfaction result in increased cash flows over time. Furthermore, customer satisfaction insulates customers from competitors' efforts and from external environmental shocks, leading to a reduction in the variability of future cash flows. The combination of these effects on future cash flows increases shareholder value (Rappaport 1986).

Measuring Customer Satisfaction and Shareholder Value

In this study, we measure customer satisfaction using the American Customer Satisfaction Index (ACSI) database. The ACSI is the first comprehensive U.S. customer satisfaction database (Fornell et al. 1996). Data are collected at the consumer level; more than 50,000 respondents are surveyed by computer-aided telephone interviews every year since 1994. Respondents are questioned on 15 indicator variables, which are then used to compute six latent constructs, including an overall customer satisfaction index. All measures are based on customers' experiences with the particular service or product.

The survey includes more than 200 members of the *Fortune* 500 (both private and public firms) in more than 40 industries, providing a nationally representative sample of goods and services. In some respects, the ACSI is similar to a macroeconomic indicator, because the sales volume of the surveyed firms represents more than 40% of the U.S. gross domestic product (Fornell et al. 1996).

Since 1994, there have been several studies examining the relationship between customer satisfaction and firm performance using the data from Sweden (Anderson, Fornell, and Lehmann 1994) and the newer ACSI (Anderson, Fornell, and Rust 1997, Fornell et al 1996, Ittner and Larker 1998) Despite the significance of these efforts, theoretical and operational limitations of the dependent variables limit the studies' ability to understand how customer satisfaction affects shareholder value (Rust et al 2004, Srivastava, Shervani, and Fahey 1998)

Modeling future cash flow as the source of shareholder value is consistent with the current theory (and practice) of firm valuation Finance researchers have long proposed that the value of a firm to shareholders equals the net present value of all future cash flows (Rappaport 1986) Marketing scholars have also supported future cash flows as an appropriate measure of shareholder value (Day and Fahey 1988, Hunt and Morgan 1995, Srivastava, Shervani, and Fahey 1998, 1999). Furthermore, firm valuation determined by various discounted cash flow methods (differing with respect to how they treat taxes and the definition of cash flow) yields the same value of the company to shareholders (Fernandez 2002) In addition, modeling the effect of customer satisfaction on the characteristics of future cash flows provides actionable insights for managers (Ambler et al 2002) Finally, by tracking the influence of marketing actions to characteristics of metrics that CFOs already monitor (i e , cash flows), the discounted cash flow model provides a "road map" for CFOs and marketing managers to coordinate and translate their decisions into shareholder value

Model Formulation

Because of the importance of future cash flows in models of firm valuation, there has been a great deal of research on this topic in the accounting and finance literature Several findings from these studies are germane to our task of understanding how customer satisfaction affects the growth and variability of future cash flows [1] First, Lorek, Schaefer, and Willinger (1993) find that time-series models provide better predictions of future cash flow than do cross-sectional models Second, the prediction of future cash flow using a time-series model is enhanced by the inclusion of both current earnings and current cash flow (Dechow, Kothari, and Watts 1998) [2] Third, there are significant cross-industry differences in the processes that generate future cash flows (e g , Barth, Cram, and Nelson 2001) and govern the variations in cash flow over time (Ismail and Choi 1996) Accordingly, the accounting and financial literature streams have traditionally modeled cash flows as follows

$$\text{(1)} \qquad \text{Cash flow}_{(t+1)} = f_1(\text{Cash flow}_{(t)}, \text{Earnings}_{(t)})$$

The primary contribution of this study is to extend this formulation and examine the incremental ability of customer satisfaction to explain variations in future cash flows Thus, we include current levels of customer satisfaction as an explanatory variable [3]

$$\text{(2)} \quad \text{Cash flow}_{(t+1)} = f_2(\text{Cash flow}_{(t)}, \text{Earnings}_{(t)}, \text{Satisfaction}_{(t)})$$

In addition to being consistent with current accrual-based time-series models, this formulation can be extended to include firm and industry covariates This is particularly relevant because prior research linking customer satisfaction to firm performance suggests that the association varies significantly across industries (Anderson, Fornell, and Rust 1997, Fornell et al 1996) and across firms (Cadogan et al 2002, Gray, Matear, and Matheson 2002) However, these sources of heterogeneity have not been modeled in a systematic and comprehensive way in any prior research on the determinants of two important characteristics of future cash flows· growth and variability (Srivastava, Shervani, and Fahey 1998, 1999)

Growth Model

To model the effects of customer satisfaction on cash flow growth, we develop an empirical model that summarizes the current research on predicting future cash flows (e g , Dechow, Kothari, and Watts 1998)

$$\text{(3a)} \quad \text{Cash flow}_{(t+1)ij} = \pi_{0ij} + \pi_{1ij} \times \text{Cash flow}_{(t)ij} + \pi_{2ij} \times \text{Earnings}_{(t)ij} + \pi_{3ij} \times \text{Satisfaction}_{(t)ij} + e_{tij}$$

Cash flow for firm i in industry j at time (t + 1)—future cash flows—is a function of cash flow in the current period (t), current earnings, and current level of customer satisfaction The term e_{tij} is a random error and is normally distributed

Prior research (e g , Buzzell and Gale 1987, Cadogan et al 2002) indicates that firms can follow different strategies to achieve their performance goals Controlling for such differences is necessary to understand the linkages between customer satisfaction and shareholder value Furthermore, research on financial performance (Capon, Farley, and Hoenig 1990, Syzmanski, Bharadwaj, and Vadarajan 1993) identifies several firm-level characteristics that can influence the association between customer satisfaction and future cash flow These include advertising and research and development (R&D) intensities (Bharadwaj, Bharadwaj, and Konsynski 1999) and levels of diversification (Varadarajan 1986)

We add to this well-established list of measures an indicator for the number of brands that a firm offers Some researchers suggest that having a large stable of brands enhances firm performance By offering many brands to customers (the "house-of-brands" strategy), a firm is more likely to match disparate needs in the market by establishing separate identities and target markets for each brand The brand proliferation strategy can be used to signal a product breakthrough, reduce channel conflict (Aaker and Joachimsthaler 2000), and block the entry of new competitors by controlling retail shelf space (Schmalensee 1978) Conversely, the potential cost implications of supporting a large number of brands have motivated some researchers to suggest that brand pruning rather than brand proliferation should be the focus of many consumer goods companies (Kumar 2003)

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[1] Srivastava, Shervani, and Fahey (1998) include acceleration as a characteristic of cash flows that contributes to shareholder value Although we found that customer satisfaction significantly influences cash flow acceleration, this result can be inferred from the cash flow growth model, and in the interest of conserving space, we do not reported it

[2] Beginning with a random walk model of sales, Dechow, Kothari, and Watts (1998) explore the relationships among future cash flow, current earnings, and current cash flow as governed by the accounting accrual process

[3] This is consistent with our preceding discussion on the effect of satisfaction on future consumer behavior

Finally, the market share that a firm controls has implications for its strategic goals and behaviors, including segment coverage, channel selection, and choice of marketing partners (Houston et al 2001) This is a particularly interesting issue, and Fornell (1995) suggests that pursuing market share is incompatible with increasing customer satisfaction

Although not an exhaustive list, these measures represent a range of firm-level strategic differences We examine how these strategic differences influence (1) the discounted cash flow model (impact on π_{0ij}) and (2) the strength of the association between customer satisfaction and cash flow growth by allowing the customer satisfaction base-level estimate (π_{3ij}) to be dependent on these firm-level controls[4] The firm-level model reflects these influences, which we summarize in Equation 3b

$$
\begin{aligned}
\text{(3b)}\quad \pi_{0ij} &= \beta_{00j} + \beta_{01j} \times \text{Market share}_{ij} + \beta_{02j} \times \text{Adv}_{ij} \\
&\quad + \beta_{03j} \times \text{RD}_{ij} + \beta_{04j} \times \text{Brands}_{ij} + \beta_{05j} \times \text{Segments}_{ij} \\
&\quad + r_{0ij}, \\
\pi_{1ij} &= \beta_{10j} + r_{1ij}, \\
\pi_{2ij} &= \beta_{20j} + r_{2ij}, \text{ and} \\
\pi_{3ij} &= \beta_{30j} + \beta_{31j} \times \text{Market share}_{ij} + \beta_{32j} \times \text{Adv}_{ij} \\
&\quad + \beta_{33j} \times \text{RD}_{ij} + \beta_{34j} \times \text{Brands}_{ij} + \beta_{35j} \times \text{Segments}_{ij} \\
&\quad + r_{3ij},
\end{aligned}
$$

where Market share_{ij} is firm's i share of total demand in industry j, Adv_{ij} is a firm-level measure of advertising intensity (advertising-to-sales ratio), RD_{ij} is a firm-level measure of R&D intensity (R&D spending-to-sales ratio), Brands_{ij} is the total number of different brands that a firm offers, and Segments_{ij} is the number of distinct business segments in which the firm competes (Carter 1977) The two firm-level spending-intensity variables (Adv_{ij}, RD_{ij}) are expressed as the ratio of firm i's level divided by industry j's mean This yields a positive index indicating whether a firm's capital intensity is above (>1) or below (<1) the industry mean The variables Brands_{ij} and Segments_{ij} are unstandardized measures Finally, the terms r_{0-3ij} are normally distributed random errors that are specific to firm i in industry j

These firm-level strategic differences are not expected to influence the accruals (π_{1ij} and π_{2ij}), because this process has been traditionally modeled as a simple random walk (Dechow, Kothari, and Watts 1998, Finger 1994) Structural characteristics (i e , industry differences) rather than firm characteristics are more likely to influence the accruals process (Barth, Cram, and Nelson 2001) Nonetheless, we tested for the influence of firm covariates on the process As expected, we found mostly estimates that were not significant Thus, we concentrate on how the firm differences affect cash flow growth directly and the strength of the association between customer satisfaction and cash flow growth

Research on the determinants of future cash flow (e g , Barth, Cram, and Nelson 2001) suggests that a firm's cash flows are influenced in part by the industry in which it competes Therefore, we expect that the main effect firm-level parameters in Equation 3b (i e , β_{00j}, β_{10j}, β_{20j}, and β_{30j}) are likely to vary by industry We model these effects by including a set of industry-level controls, which we summarize in Equation 3c

$$
\begin{aligned}
\text{(3c)}\quad \beta_{00j} &= \gamma_{000} + \gamma_{001} \times \text{HHI}_j + \gamma_{002} \times \text{Demand growth}_j \\
&\quad + \gamma_{003} \times \text{Demand instability}_j + u_{00j}, \\
\beta_{10j} &= \gamma_{100} + \gamma_{101} \times \text{HHI}_j + \gamma_{102} \times \text{Demand growth}_j \\
&\quad + \gamma_{103} \times \text{Demand instability}_j + u_{10j}, \\
\beta_{20j} &= \gamma_{200} + \gamma_{201} \times \text{HHI}_j + \gamma_{202} \times \text{Demand growth}_j \\
&\quad + \gamma_{203} \times \text{Demand instability}_j + u_{20j}, \\
\beta_{30j} &= \gamma_{300} + \gamma_{301} \times \text{HHI}_j + \gamma_{302} \times \text{Demand growth}_j \\
&\quad + \gamma_{303} \times \text{Demand instability}_j + u_{30j}, \text{ and} \\
\beta_{31j} &= \gamma_{310} + u_{31j},\ \beta_{32j} = \gamma_{320} + u_{32j},\ \beta_{33j} = \gamma_{330} + u_{33j}, \\
\beta_{34j} &= \gamma_{340} + u_{34j},\ \beta_{35j} = \gamma_{350} + u_{35j},
\end{aligned}
$$

where HHI_j (i e , the Hirschmann–Herfindahl index) is a measure of market concentration in industry j, Demand growth_j is the average five-year sales growth for industry j, and Demand instability_j is the standard deviation of the five-year sales growth for industry j (Finkelstein and Boyd 1998) The terms $u_{00-30-35j}$ are normally distributed random errors that are specific to industry j

The sign and magnitude of π_{3ij} test the hypothesis that customer satisfaction contributes to growth in future cash flows This parameter estimate is the primary focus of this study because it measures the influence of customer satisfaction on future cash flows beyond that of current cash flows and current earnings The role of firm and industry differences on the association between current customer satisfaction and future cash flow is indicated by estimates of the relevant β and γ parameters

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[4] Note that these firm-level strategic differences do not have a time subscript, because for the period under analysis, they are modeled to be time invariant We provide additional details on this procedure in the "Data" section

Variability Model

To test the impact of customer satisfaction on the variability of future cash flows, we must construct a measure of cash flow variability For this purpose, we compute a coefficient of cash flow variability for each year using quarterly cash flow data (Rajgopal and Shevlin 2002) by dividing each firm's quarterly cash flow coefficient of variation (i e , standard deviation divided by the mean) by the market's quarterly cash flow coefficient of variation (which we obtained from the Wilshire 5000 index for our market definition) The coefficient of cash flow variability measures how variable an individual firm's cash flows are compared with the variability in the market's cash flows For ease of exposition, we model cash flow variability in the same way as the previously described cash flow growth model This yields the following formulation

$$\text{(4a)} \quad \text{CF variability}_{(t+1)ij} = \pi_{0ij} + \pi_{1ij} \times \text{CF variability}_{(t)ij} + \pi_{2ij} \times \text{Earnings}_{(t)ij} + \pi_{3ij} \times \text{Satisfaction}_{(t)ij} + e_{tij}$$

We included earnings in the model because, all else being equal, larger firms are more likely to have more stable cash flows (Sloan 1996) The remainder of the cash flow variability model replicates Equations 3b and 3c, generating equivalent Equations 4b and 4c, which we do not present in the interest of conserving space

Again, we test the hypothesis that customer satisfaction reduces future cash flow variability using the sign and magnitude of the coefficient in the firm-level model (π_{3ij}) Firm and industry differences can be determined by analyzing the corresponding β and γ coefficients

Model Estimation

To estimate the previous models, we use a multilevel hierarchical Bayes formulation known as a hierarchical linear model (HLM) The HLM approach builds on familiar concepts from regression and analysis of variance to estimate multilevel or nested models (Bryk and Raudenbush 1992, Goldstein 1987) This is particularly relevant for this study given the hierarchical nature of the data (i e , firms nested within industries) In addition, given the potential significance of firm and industry covariates, it is important to be able to estimate which proportions of future cash flow variance are attributable to the industry- versus firm-level differences To this end, HLM enables us to separate the different variance components by modeling an individual firm's future cash flow as a distribution around the firm's average over time In turn, this firm average is distributed around the industry mean Ultimately, the industry means are distributed around the grand mean for the entire sample Operationally, the HLM approach uses an empirical Bayes method to estimate within-industry coefficients, generalized least squares to estimate between-industry coefficients, and a maximum likelihood–expected maximization algorithm to estimate variance and covariance components (for a marketing application of this methodology, see Brown 1999)

In addition to the HLM methodology, we estimate the growth (Models 3a–3c) and variability (Models 4a–4c) models using a random coefficients formulation to test the robustness of our results with respect to the estimation method that we use We present these results in the same tables as the HLM results

Data

To estimate the empirical models presented in the previous section, we used ACSI data for the years 1994 through 2002, which the National Quality Research Center at the University of Michigan Business School made available Fornell and colleagues (1996) provide extensive details on the methodology used to collect the information contained in the ACSI database These data were complemented with COMPUSTAT data from 1994 to 2003 to estimate the impact of customer satisfaction on cash flow growth and cash flow variability Specifically, net cash flow from operations (COMPUSTAT Data Item #308) and net income before extraordinary items (COMPUSTAT Data Item #18 [i e , earnings]) were collected for the periods and firms in our sample

Market share data were collected for all the companies in the data set for the entire period being analyzed We also used the COMPUSTAT database to compute firm-level advertising and R&D intensities As we noted previously, deviations from the industry mean were calculated as a ratio and used in the firm-level portion of the models (Equations 3b and 4b) We used the business segment portion of the COMPUSTAT database to compute the firm-level diversification variable (Segments_{ij}), which is defined as the number of "unique business a specific company" operates in, and each business segment is "identified with a unique NAICS code" (Standard & Poor's 2003, pp 14–16) [5]

Finally, we examined 10-K filings with the Securities and Exchange Commission for all publicly traded companies in the data set for every year to determine the total number of brands offered by each firm (Brands_{ij}) We cross-validated this measure for a sample of 15 firms using the database "Brands and Their Companies" The correlation between these two measures of the number of brands (r = 89) is considered acceptably high (James, Demaree, and Wolf 1984)

Because the five firm-level controls (i e , market share, advertising, R&D, number of brands, and number of segments) do not vary significantly over time, they are included as firm-level averages and therefore are time invariant This enables us to calculate directly the percentage of variance accounted for by this set of firm-level controls [6]

We used the COMPUSTAT database to compute industry average demand growth and demand instability, using five-year average sales growth for demand growth and the associated standard deviation for demand instability (Finkelstein and Boyd 1998) Finally, we used the market share data collected at the firm level to compute the HHI of market concentration[7] We used these data items at the industry-level portion of our formulation (Equations 3c and 4c)

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[5] The acronym NAICS stands for North American Industry Classification System, which replaces the Standard Industrial Classification

[6] Note that the results remain the same when we use time-varying data However, the ability to measure directly the portion of variance explained in cash flow growth and variability motivated our use of the time invariant data

Because cash flows are strongly correlated with firm size, normalization of the data was required In line with prior studies on the prediction of future cash flows (e g , Cipriano, Collins, and Revsine 2000, Sloan 1996), we used the firm's total assets to standardize cash flows We standardized the earnings data in the same way[8] Because ACSI is already an index (Fornell et al 1996), no normalization was required

To estimate Equations 4a–4c, we computed firm-level coefficients of cash flow variability on a yearly basis using quarterly cash flow data In line with the method that Rajgopal and Shevlin (2002) describe, we compared variability of a firm's cash flow during a given year with the variability of cash flows of the broader market In this case, we used the Wilshire 5000 Index as the proxy for the broader market A coefficient of variability equal to one indicates that the firm's cash flows are as variable as those of the overall market Likewise, a coefficient of variability greater than (less than) one indicates that the firm's cash flows are more (less) variable than are those of the market Because the resultant relative coefficients of variability exhibited skewness, we used a logarithm transformation to normalize the data This transformation has implications for the interpretation of the parameters we obtained from estimating Equations 4a–4c because they are semilog models

The overlap between the ACSI and COMPUSTAT data sets resulted in 840 firm-year observations in 23 industries over the eight-year period under analysis[9] Tables 1 and 2 summarize descriptive statistics for the two data sets Table 3 lists the 23 industries, the total number of firm years included in the analyses, the industry's average satisfaction score, and the net operational cash flows in millions of dollars

Results

Tables 4 and 5 summarize our analyses For both models, each column reports increasingly complex formulations beginning with the finance formulation, which includes the current level of cash flow (or variability) and current level of earnings (Equation 1) We then added the current level of customer satisfaction to the model (Equations 3a and 4a) We continued by adding firm covariates (Equations 3b and 4b) and industry covariates (Equations 3c and 4c) For multimethod comparison purposes, the last column contains estimates we obtained using the equivalent random coefficients model formulation We report variance partitioning and fit measures at the bottom of both tables In addition, Table 6 reports the main effects of industry covariates on the cash flow process by current cash flows (cash flow vari-

TABLE 1
Descriptive Statistics

	N	Mean	Standard Deviation	Q1	Median	Q3
Time Variant Firm Level						
Cash flow$_{t+1}$	1694	1306 87	2952 19	67 70	334 11	1134 26
Cash flow$_t$	1593	1300 59	2949 65	60 47	331 52	1131 96
Earnings$_t$	1322	4733 03	8192 83	894 75	2041 60	4820 59
Satisfaction$_t$	928	76 37	6 17	71 89	76 83	81 17
Valid N (listwise)	840					
ln(Coefficient variation$_{t+1}$)	764	– 51	98	–1 11	– 57	05
ln(Coefficient variation$_t$)	778	– 50	98	–1 10	– 58	06
Satisfaction$_t$	928	76 37	6 17	71 89	76 83	81 17
Valid N (listwise)	735					
Time Invariant Firm Level						
Market share	143	9 36	15 70	61	4 81	9 29
Advertising intensity	167	82	77	49	77	93
R&D intensity	126	99	92	60	92	1 11
Number of brands	129	15 28	12 00	4 00	12 00	15 28
Number of segments	124	2 81	2 81	2 00	2 81	3 00
Valid N (listwise)	105					
Industry Level						
HHI	23	05	07	01	03	05
Demand growth	23	18 01	7 57	11 50	17 99	24 40
Demand instability	23	2 21	34	1 97	2 21	2 43
Valid N (listwise)	23					

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[7] The HHI is the best measure of market concentration (Curry and George 1983)

[8] The results and significance did not change in models that used unstandardized data However, the interpretations of the coefficients are different

[9] One year of data is lost to compute the cash flow variability analysis, resulting in 735 data points over seven years We also estimated the cash flow growth model using this trimmed data set, and the substantive results remain consistent

TABLE 2
Correlations

	CF_{t+1}	CF_t	CV_{t+1}	CV_t	$Earn_t$	Sat_t	MS_t	Adv_t	RD_t	$Brnd_t$	$Segs_t$	HHI_t	$Grow_t$	$Instb_t$
Cash $flow_{t+1}$	1 000													
Cash $flow_t$	747	1 000												
ln(Coefficient $variation_{t+1}$)	050	035	1 000											
ln(Coefficient $variation_t$)	007	051	596	1 000										
$Earnings_t$	114	143	053	039	1 000									
$Satisfaction_t$	399	369	– 174	– 108	165	1 000								
Market share	007	007	– 073	– 078	089	084	1 000							
Advertising intensity	– 055	– 051	053	059	– 159	163	– 145	1 000						
R&D intensity	– 011	– 011	– 004	003	– 006	– 017	086	106	1 000					
Number of brands	054	053	007	009	158	110	082	– 001	– 018	1 000				
Number of segments	043	040	– 059	– 052	– 183	025	149	093	048	095	1 000			
HHI	059	058	– 023	– 024	– 022	228	354	– 031	– 126	105	126	1 000		
Demand growth	– 084	– 080	– 011	– 012	– 244	– 367	– 258	– 046	– 014	– 133	035	– 423	1 000	
Demand instability	– 117	– 112	021	002	– 356	– 398	– 216	030	113	– 170	194	– 246	676	1 000

TABLE 3
Sample

Sector	Industry	Observations: Firm Year	Satisfaction: Average Over Time and Firms (100 index)	Yearly Cash Flows: Average Over Time and Firms (in Millions of Dollars)
Nondurables	Apparel	29	79	1,284
	Athletic shoes	16	77	1,542
	Beer	18	81	1,973
	Cigarettes	16	77	1,153
	Food processing	89	83	1,542
	Personal care products	30	83	1,749
	Soft drinks	24	85	2,245
Durables	Automobiles	73	80	1,029
	Consumer electronics	40	81	495
	Household appliances	24	83	1,175
	Personal computers and printers	30	73	1,878
Services	Airlines	45	67	1,687
	Hotels	23	73	1,340
	Local telephone service	40	73	1,999
	Long-distance telephone service	22	76	1,765
	Parcel delivery/express mail	16	79	1,829
	Utilities	127	74	885
Retail	Department and discount stores	56	74	1,030
	Fast food, pizza, carryout	31	69	1,750
	Supermarkets	53	75	1,671
Financial	Banks	16	69	1,342
	Life insurance	11	75	99
	Personal property Insurance	11	76	392
Overall average			76	1,306

ability) and earnings on future cash flow (future cash flow variability)

Overall, there is a positive, significant association between customer satisfaction and cash flow growth In addition, there is a negative, significant impact of satisfaction on future cash flow variability[10] These results indicate that higher levels of customer satisfaction contribute to the creation of shareholder value Next, we discuss in detail how satisfaction influences future cash flow growth and future cash flow variability

Growth Model

Main effects The financial model (Equation 1) estimations indicate that 47% of the variance in future cash flow is attributable to industry characteristics, 47% is attributable to firm differences, and 5% is attributable to effects over time These percentages change as we add customer satisfaction, firm covariates, and industry controls approximately 12% of total variance is attributable to effects over time, 53% is attributable to firm differences, and 35% is attributable to industry differences (column 5 of Table 4) The likelihood function and the Akaike information criteria (AIC) improve with the addition of the firm covariates The addition of industry covariates improves the likelihood function but not the AIC because of the large number of additional parameters that are estimated

Overall, firm differences explain the majority of the variance in the dependent variable, suggesting that these differences (presumably a consequence of management decisions) are the most important determinants of future cash flows However, a large percentage of variance accounted for at the industry level (35%) indicates that a manager's ability to influence cash flow growth may be bound by structural characteristics of the industry in which the firm competes

Closer inspection of the full model estimates (Equation 3c) indicates that the current cash flows and current customer satisfaction (at time t) jointly determine future cash flows (at time t + 1) A 49% carryover of current cash flow

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[10] Despite the strength of some of the associations between variables in our data set (e g , lagged terms), autocorrelation is not a significant problem based on the traditional Durbin Watson test and the more robust modified Box-Pierce Q statistic (Lobato, Nankervis, and Savin 2001)

TABLE 4
Growth Model

	Equation 1 (Financial)	Equation 3a (Satisfaction)	Equation 3b (Firm)	Equation 3c (Industry)	Random Coefficients
π_0 (Intercept)	05295	−07084	−03960	01586	−01958
p-value	00	00	27	36	42
π_1 (Cash flow$_{(t)ij}$)	55976	58389	60579	49883	53407
p-value	00	00	00	00	05
π_2 (Earnings$_{(t)ij}$)	00210	00167	00267	02169	01666
p-value	35	40	40	18	21
π_3 (Satisfaction$_{(t)ij}$)		00155	00111	00101	00124
p-value		00	00	02	03
β_{01} (Market share$_{ij}$)	(Main effect on intercept)		−00238	−00121	−00193
p-value			04	04	02
β_{02} (Advertising intensity$_{ij}$)			−99212	−61262	−84102
p-value			02	03	06
β_{03} (R&D intensity$_{ij}$)			815871	42279	20082
p-value			21	15	19
β_{04} (Number of brands$_{ij}$)			−00067	−00055	−00070
p-value			05	06	04
β_{05} (Number of segments$_{ij}$)			00401	−01289	01476
p-value			78	67	68
β_{31} (Market share$_{ij}$)	(Interaction with satisfaction)		00004	00002	00001
p-value			01	06	10
β_{32} (Advertising intensity$_{ij}$)			01017	00451	00278
p-value			03	05	04
β_{33} (R&D intensity$_{ij}$)			−05434	−06534	−04617
p-value			17	19	29
β_{34} (Number of brands$_{ij}$)			−00002	−00001	−00012
p-value			05	06	02
β_{35} (Number of segments$_{ij}$)			−00079	00045	00016
p-value			48	72	74
γ_{001} (HHI$_j$)	(Main effect on intercept)			16421	55227
p-value				80	75
γ_{002} (Demand growth$_j$)				02512	−02605
p-value				09	14
γ_{003} (Demand instability$_j$)				−04081	−04663
p-value				42	61
γ_{301} (HHI$_j$)	(Interaction with satisfaction)			−00422	01924
p-value				59	21
γ_{302} (Demand growth$_j$)				−00036	−00051
p-value				07	06
γ_{303} (demand instability$_j$)				00032	00016
p-value				91	86
Variance Partitioning					
Across industry (%)	47 26	34 11	33 89	34 98	31 90
Across firms/within industry (%)	47 48	6 35	57 48	52 73	58 40
Within firms/over time (%)	5 25	5 55	8 62	12 35	9 71
Likelihood Function	–488 34	–449 88	–407 21	–403 77	—
AIC	1008 68	948 91	943 10	952 33	

Notes Variance partitioning percentages may not add up to 100% because of rounding

to future cash flow is consistent with results of prior studies of future cash flows (e g , Finger 1994) Surprisingly, current earnings do not have a significant impact on future cash flows These estimates differ from existing accounting and finance research (Dechow, Kothari, and Watts 1998) and suggest that the accruals process for the firms in our data set (i e , consumer products firms in the *Fortune* 500) is different from other studies that included smaller public companies and those from firms that primarily serve business-to-business customers

The positive and significant estimate for π_3 (00101) confirms that customer satisfaction is a substantive determinant of future cash flow growth The apparently small size of the estimate must be interpreted with the knowledge that we standardized cash flows by asset size This estimate is indicative of the large influence of customer satisfaction in

TABLE 5
Variability Model

	Equation 1 (Financial)	Equation 4a (Satisfaction)	Equation 4b (Firm)	Equation 4c (Industry)	Random Coefficients
π_0 (Intercept)	73645	68751	79978	86091	46059
p-value	00	05	02	01	03
π_1 ($CV_{[\text{Cash Flow}](t)ij}$)	−03311	03858	02801	10302	25021
p-value	05	05	07	03	04
π_2 ($\text{Earnings}_{(t)ij}$)	−50748	18721	−08085	28629	17865
p-value	86	72	73	66	69
π_3 ($\text{Satisfaction}_{(t)ij}$)		−06041	−07455	−04129	−08274
p-value		03	04	03	01
β_{01} (Market share_{ij})	(Main effect on intercept)		−14396	−11495	−04601
p-value			06	04	12
β_{02} ($\text{Advertising intensity}_{ij}$)			22438	21037	14082
p-value			13	07	08
β_{03} ($\text{R\&D intensity}_{ij}$)			−45160	−42977	−15101
p-value			26	19	47
β_{04} ($\text{Number of brands}_{ij}$)			04508	03461	03964
p-value			70	72	68
β_{05} ($\text{Number of segments}_{ij}$)			−60191	−56964	−35931
p-value			39	29	55
β_{31} (Market share_{ij})	(Interaction with satisfaction)		−00209	−00717	−01384
p-value			04	03	00
β_{32} ($\text{Advertising intensity}_{ij}$)			−83443	−70900	−55498
p-value			48	33	37
β_{33} ($\text{R\&D intensity}_{ij}$)			54224	23155	29955
p-value			58	49	42
β_{34} ($\text{Number of brands}_{ij}$)			−00061	−00046	−00010
p-value			70	77	81
β_{35} ($\text{Number of segments}_{ij}$)			02650	03412	01822
p-value			08	09	25
γ_{001} (HHI_j)	(Main effect on intercept)			−52307	−23902
p-value				08	20
γ_{002} (Demand growth_j)				63000	87020
p-value				59	21
γ_{003} ($\text{Demand instability}_j$)				01335	−00936
p-value				51	49
γ_{301} (HHI_j)	(Interaction with satisfaction)			−06997	−09598
p-value				06	03
γ_{302} (Demand growth_j)				00911	01282
p-value				57	40
γ_{303} ($\text{Demand instability}_j$)				−18221	35164
p-value				39	22
Variance Partitioning					
Across industry (%)	74 96	67 45	6 79	53 92	48 78
Across firms/within industry (%)	18 03	25 64	31 03	33 41	39 91
Within firms/over time (%)	7 01	6 88	8 20	12 67	11 30
Likelihood Function	−892 20	−869 81	−824 44	−815 19	—
AIC	1816 40	1790 99	1783 76	1782 53	

Notes Variance partitioning percentages may not add up to 100% because of rounding

creating shareholder value The economic interpretation of this estimate suggests that a one-point increase in customer satisfaction generates an additional $1 01 in net operating cash flows in the following year for every $1,000 in assets To put this amount in perspective, consider that the average firm in our data set has $54 billion in assets A one-point increase in customer satisfaction translates into an increase in future cash flows of $55 million, a substantial figure by any measure

Firm covariates The parameter estimates for the firm-specific covariates suggests that market share, advertising intensity, and the number of brands moderate the strength of the relationship between customer satisfaction and future cash flows and change the baseline cash flows (by the main effect on π_0) Firms exhibiting higher market shares, above (industry) average advertising intensities, or larger brand portfolios also exhibit lower baseline cash flows per assets, perhaps because of the increased expenses associated with

TABLE 6
Industry Effects

Growth Model	Interaction Cash Flow$_{(t)ij}$	 Earnings$_{(t)ij}$
γ_{101} (HHI$_j$)	- 23823	23037
p-value	66	17
γ_{102} (Demand growth$_j$)	- 03514	00160
p-value	02	40
γ_{103} (Demand instability$_j$)	43928	- 02843
p-value	09	61
Variability Model	**CF Variability$_{(t)ij}$**	**Earnings$_{(t)ij}$**
γ_{201} (HHI$_j$)	37573	50691
p-value	07	06
γ_{202} (Demand growth$_j$)	- 00234	- 09290
p-value	31	51
γ_{203} (Demand instability$_j$)	- 11140	43732
p-value	72	19

such firm characteristics However, higher market share and advertising intensity increase the positive association between customer satisfaction and future cash flow growth In contrast, firms possessing larger brand portfolios decrease the efficacy of converting satisfied customers into future cash flows The intensity of R&D and diversification do not have any significant effect on the future cash flow growth, either directly or through interaction effects

Industry covariates Analysis of the industry-level estimates indicates that market concentration and demand instability do not influence future cash flow growth However, industry demand growth increases the baseline future cash flows but reduces the strength of the association between satisfaction and cash flow growth Table 6 reveals a similar pattern for the moderated effect of demand growth on future cash flows from current cash flows but no significant effect from current earnings The last column in Table 4 summarizes estimates we obtained by running the equivalent full model formulation using a random coefficients formulation Overall, these estimates are comparable to those obtained using HLM, and they confirm the robustness of the results to different estimation methods

Variability Model

Main effects The financial model (Equation 1) indicates that 75% of the variance in future cash flow variability (coefficient of variation) is attributable to industry differences With the sequential addition of covariates, this percentage decreases to 54% for the full model (Equation 4c) These results strongly suggest that structural characteristics (i e , industry differences) are important determinants of cash flow variability Firm differences account for 33% of the variance in cash flow variability, whereas temporal trends explain 13% of such variance Finally, the likelihood function and AIC improve with the addition of the firm and industry covariates

Analysis of the main effects (Equation 4c) indicates the existence of a small carryover effect from year to year (10%) that is consistent with prior research (Ismail and Choi 1996) In addition, current earnings have no direct influence on future cash flow variability This is also consistent with prior research (Hertzel and Rees 1998) The estimate for π_3 indicates that customer satisfaction reduces the coefficient of variation associated with a firm's cash flows by more than 04 Because of the log transformation of the dependent variable, this result suggests that a one-point increase in customer satisfaction reduces the variability of a firm's cash flows by more than 4% This is an important result because it indicates that firms can rely on satisfied customers to generate more stable cash flow patterns, which has obvious consequences on decreasing the cost of capital for the firm (Bae and Jo 2002)

Firm covariates Inspection of the time invariant firm controls indicates that as market share increases, baseline future cash flow variability decreases In addition, increased market share strengthens the effect of customer satisfaction in reducing future cash flow variability Conversely, advertising expenditures increase baseline cash flow variability, yet they have no significant effect on the strength of the satisfaction–variability association Finally, R&D expense, the number of brands, and the number of segments do not significantly affect, directly or indirectly, the association between satisfaction and cash flow variability

Industry covariates Increased market concentration decreases the baseline cash flow variability and strengthens the effect of satisfaction in reducing such variability (i e , cash flow will be less variable) However, demand patterns (i e , growth and instability) have no significant impact on the mentioned associations Finally, it is important to note that these results are robust to methodology choice because the overall nature and magnitude of the associations between the variables remains almost unchanged when estimated by the random coefficients methodology (column 6 in Table 5)

Estimated Heterogeneity

Because industry characteristics account for a sizable percentage of the variance in both cash flow growth (35%) and variability (54%), we examined how other structural differences may influence the relationships The HLM methodology is particularly apt for handling this task We obtained firm- and industry-level empirical Bayes residuals for the π_3 estimates for both models We then used these to compute industry averages of π_3, which we report in Figures 1 and 2 These figures reveal interesting patterns in the associations between satisfaction and cash flow growth and variability

Figure 1 summarizes differences in firm-level estimates for the association between customer satisfaction and future cash flows The influence of customer satisfaction on cash flow growth is greatest for low-involvement, routinized, and frequently purchased products (e g , supermarkets, beer, fast food) and smallest for big-ticket, high-involvement, and less frequently purchased products (e g , property insurance, household appliances) In addition, these results indicate that higher levels of customer satisfaction seem to have a negative effect on cash flow growth in two industries long-distance telephone service and automobiles

FIGURE 1
Industry Differences and Cash Flow Growth

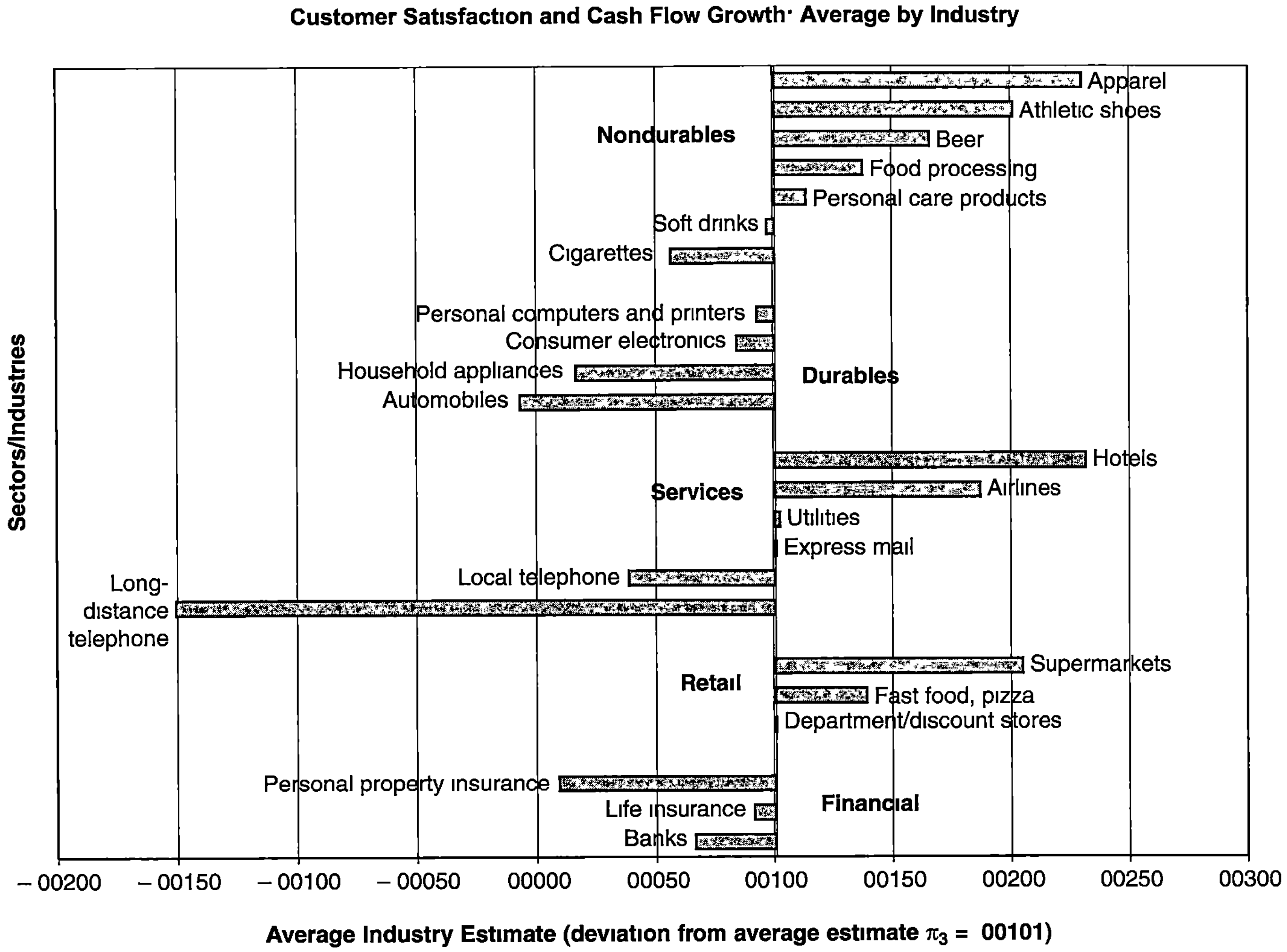

Customer Satisfaction and Cash Flow Growth: Average by Industry

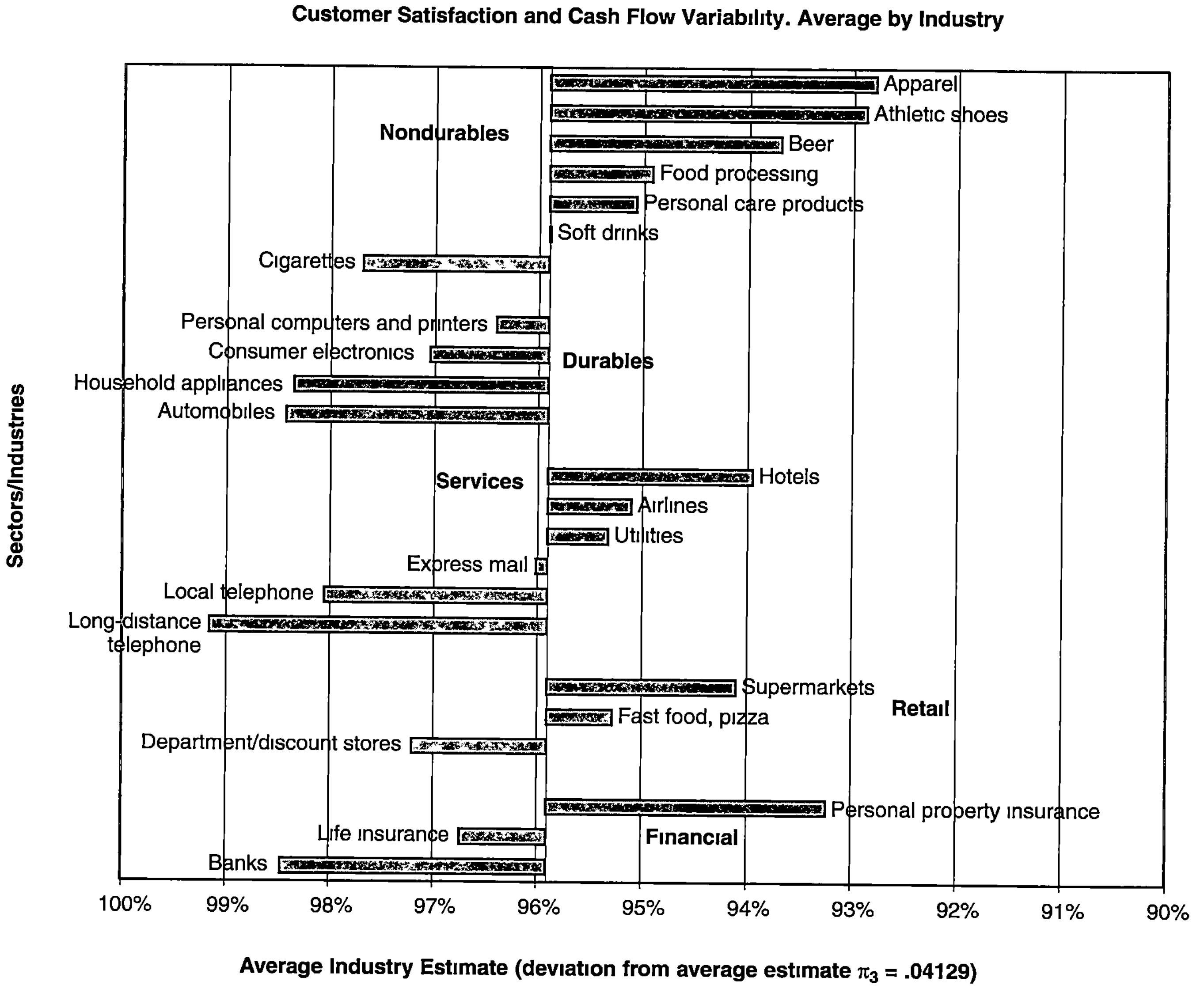
Figure 2 summarizes the cash flow variability analyses. Overall, customer satisfaction reduces the variability of future cash flows because all industry average estimates and the vast majority of firm-level estimates are less than 100%. However, when comparing industry averages, we observe that customer satisfaction can be relatively more or less effective in reducing the variability of future cash flows for products in the same category (e.g., life insurance versus personal property insurance). Note that customer satisfaction has a beneficial effect on reducing future cash flow variation in the fashion-driven apparel and athletic shoe industries.

Validity of Results

To assess the predictive ability of the cash flow growth and variability models, we created two different types of holdout samples from our data. One consisted of the last three years of data and the other consisted of a random sample of 15% of the firms across all years. For each type of holdout sample, we estimated each of the models using the remaining data. We then predicted Cash flow$_{(t+1)ij}$ and CF variability$_{(t+1)ij}$ for all holdout observations and compared these results with the actual observations. We computed the mean absolute percentage error for each model formulation and type of holdout sample. The results appear in Table 7. Overall, Table 7 reveals two important conclusions. First, the addition of customer satisfaction increases the predictive accuracy of the model whether we use a time-based or randomly selected holdout sample. Second, our results are robust because they do not depend on a specific time period or set of firms.

A central argument of this study is that satisfaction positively influences consumer behavior such that it increases the value of the firm to shareholders. In the previously discussed models, we focused on the impact of customer satisfaction on the nature of future cash flows. If the positive effects of customer satisfaction on shareholder value are generalizable, we should find similar effects using alternative measures of firm value and return volatility. We tested this conjecture using Tobin's q, price-to-book ratio, and stock price as alternative measures of firm value. We also examined whether customer satisfaction influences the sta-

FIGURE 2
Industry Differences: Cash Flow Variability



bility of returns for a firm's stock as represented by its beta coefficient. We report these analyses in Table 8.

The results confirm our finding that customer satisfaction has a positive, significant impact on the future value of the firm, regardless of the measure of firm value we use. In addition, customer satisfaction significantly reduces the volatility of a firm's returns compared with that of the overall market. Therefore, we conclude that the positive influence of current satisfaction on future firm value does not depend on the measure of shareholder value or return volatility used, which further confirms the robustness of our results. Finally, to control for possible model misspecification and omitted variables, we ran first differences growth and variability equivalent specifications. These estimates also replicate our results.

Discussion

Our study shows that customer satisfaction increases future cash flows and reduces their variability. We show that these results are robust under different estimation methods (HLM versus random coefficients) and under various measures of firm value (Tobin's q, market-to-book, stock price) or return volatility (beta). The positive effects of customer satisfaction on future cash flows are both statistically significant and managerially relevant. For the average firm in our sample, a one-point increase in customer satisfaction translates into a $55 million increase in net operating cash flow in the next year. That same one-point increase in customer satisfaction results in a reduction in the variance of future cash flows of more than 4%. Such outcomes boost the value of a firm to its shareholders.

TABLE 7
Predictive Validity

	Mean Absolute Percentage Error			
	Growth Model		Variability Model	
	Three-Year Holdout (%)	15% Holdout (%)	Three-Year Holdout (%)	15% Holdout (%)
Intercepts model	29 31	27 24	82 47	79 78
Financial model	25 58	21 48	44 59	43 56
Customer satisfaction model	19 33	16 31	37 74	34 81
Firm covariates model	18 14	14 57	35 99	32 12
Industry covariates model	17 09	15 96	31 03	29 02

TABLE 8
Alternative Model Specifications

	$Q_{(t+1)}$	$PB_{(t+1)}$	$Price_{(t+1)}$	$beta_{(t+1)}$
Log-likelihood				
Intercepts only	–632 96	–1306 65	–1753 79	–195 33
Financial model	–548 33	–1268 84	–1683 43	–40 05
Satisfaction model	–531 84	–1250 59	–1674 22	–31 74
AIC				
Intercepts only	1273 91	2621 30	3515 59	398 66
Financial model	1114 66	2555 67	3384 87	98 10
Satisfaction model	1095 68	2533 18	3380 45	95 49
Estimates				
Intercept	14599	–5 39429	–41 22636	68570
t-value	2 432	–8 332	–6 254	4 147
$Lagged\ dependent_{(t)}$	66926	70070	59095	66601
t-value	3 427	4 277	4 545	2 032
$Satisfaction_{(t)}$	00585	08671	74897	– 00703
t-value	3 410	3 884	4 153	–2 024

Notes Estimates are for the satisfaction model (Equations 3a and 4a)

Equally important are the findings that firm and industry differences moderate the relationships between the characteristics of future cash flows (growth and stability) and customer satisfaction Firms commanding higher market shares are more efficient in converting customer satisfaction into future cash flow growth and reduced variability Larger advertising expenditures enable firms to translate satisfaction into future cash flows more efficiently, but they do not seem to increase cash flow stability Notably, the larger the brand portfolio, the less efficient are firms in increasing their cash flows At the industry level, firms facing overall industry demand growth seem to be less efficient in using satisfaction to increase future cash flows, whereas firms operating in more concentrated industries can convert satisfaction into reduced cash flow variability more effectively

In addition to the preceding moderating effects on the satisfaction–cash flow association, Figures 1 and 2 reveal additional industry-level effects It appears that the nature of the product itself can have an important influence on the impact of customer satisfaction on future cash flows Comparing the results for the durable and nondurable industry sectors, we observe that, in general, satisfaction has a greater positive effect on the cash flow growth and stability of most nondurables This makes sense when the comparatively short interpurchase cycle of nondurable products is considered Some of these products are purchased seasonally (e g , apparel, athletic shoes), and others may be purchased weekly (e g , food, beverages, cigarettes) Firms selling in a market with a short interpurchase cycle have more opportunities in a given period to reap the benefits from satisfying a customer For the fashion-oriented categories of apparel and athletic shoes, high levels of satisfaction keep consumers from switching to other brands, which boosts cash flow growth and provides stability in traditionally volatile markets For products such as computers, automobiles, and appliances, firms may need to wait from 18 months to many years for the opportunity to reap the rewards of satisfaction during the next buying cycle

The widely varying experiences of firms in the services sector are partly the result of differences in the nature of the services It might be expected that services with more of a relationship-like nature, such as local or long-distance telephone service, would benefit greatly from customer satisfaction However, firms in these industries have worked so hard to reduce switching costs that customers can pursue the best combination of price and quality with little effort This result is reflected in the corresponding detrimental effects on the future cash flows of firms in these industries

Paradoxically, customer satisfaction seems to transform the nature of cash flows for services that are traditionally considered transaction oriented (hotels and airlines) into those that are consistent with a relationship-type service Hotels and airlines with high levels of customer service benefit from increased loyalty and a reduced focus on price that is usually associated with services that require a long-term commitment

The preceding discussion suggests that there are tradeoffs between cash flow growth and cash flow variability Such insights can be useful in guiding CFOs and marketing managers in determining which goal might be more efficient in the creation of shareholder value, thus completing the links of the marketing productivity chain (Rust et al 2004) Customer satisfaction has a significant impact on building shareholder value because of its influence on cash flow growth and stability Our results show that these benefits are based on the context in which the firm competes and how the firm chooses to compete within that context

Limitations and Further Research

By using the ACSI database, our results are limited to the sample of large consumer product and service firms that are surveyed in this program We expect that the same marketplace advantages documented in other research on the effects of customer satisfaction on cross-selling, positive word of mouth, price sensitivity, and so forth, hold for smaller firms serving consumers as well as firms primarily serving business-to-business customers However, we show that context effects have a strong influence on the linkages between customer satisfaction and future cash flows Thus, there is a need for more research on this topic using a broader range of industries and settings

In addition, our study did not analyze all sources of shareholder value (Srivastava, Shrevani, and Fahey 1998) For example, we did not ascertain whether customer satisfaction results in a larger base of customers, which can boost the residual value of a firm to shareholders This is an important issue in the proper valuation of firms whose primary market-based assets reside in enduring customer relationships Furthermore, we restricted our study to a measure of the market-based asset of the firm's relationship with its customers The impact of the quality of a firm's relationships with its partners, including suppliers, distributors, and complementors (e g , Intel, Microsoft), on the nature of future cash flows remains an important area for further research This stream of research is valuable for the marketing discipline because it strengthens the marketing–finance interface and contributes to marketing's voice at the higher levels of the corporation

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Neil A. Morgan, Eugene W. Anderson, & Vikas Mittal

Understanding Firms' Customer Satisfaction Information Usage

Despite theoretical and empirical research linking a firm's business performance to the satisfaction of its customers, knowledge of how firms collect and use customer satisfaction information is limited. The authors investigate firms' customer satisfaction information usage (CSIU) by drawing on in-depth interviews, a focus group of managers, and the existing literature. They identify key characteristics of the major processes involved in firms' CSIU and compare the CSIU practices revealed in their fieldwork with widely held normative theory prescriptions. They also identify variations in CSIU among the firms in the fieldwork and uncover factors that may help explain the observed differences.

There is increasing evidence linking a firm's financial performance to the level of satisfaction reported by its customers (Anderson, Fornell, and Lehmann 1994; Anderson, Fornell, and Rust 1997; Bolton 1998). Therefore, managers are keen to discover how to improve customer satisfaction (CS) and thus business performance (Piercy and Morgan 1995; Westbrook 2000). The literature posits that the accomplishment of this goal requires formal systems that are designed to understand and monitor CS (Sharma, Niedrich, and Dobbins 1999; Westbrook 2000; Woodruff 1997). Such CS systems are prescribed to provide managers with practical insights into how the firm's resources should be deployed to improve satisfaction (Hayes 1992; Heskett et al. 1994; Mittal, Ross, and Baldasare 1998) and with timely and accurate leading indicators of future financial performance (Fornell 1992; Fornell et al. 1996; Ittner and Larcker 1998).

Despite this strongly advocated normative prescription, little is known about the processes by which firms actually collect and use customer satisfaction information (CSI). Many important questions remain unanswered: What are the key processes that should constitute firms' customer satisfaction information usage (CSIU)? What do firms actually do in practice? Are there areas in which CSIU practice is at variance with normative prescriptions, and if so, why? and Does CSIU enable firms to gain significant customer-based insights and thus gain competitive advantage?

The purpose of this article is to illuminate the internal processes by which firms monitor and use CSI. We begin by drawing on insights from field research and the extant literature to develop a model of CSIU, identifying the key components of CSIU and how these are linked together. Next, we use our model to compare and contrast CSIU in practice with widely held normative prescriptions from the literature. On the basis of our findings, we then identify contingency factors that affect how firms implement CSIU in practice. Finally, we bring together our model and the identified contingency factors in a fully explicated model of CSIU processes, influencing factors, and the association between CSIU and firm performance. We conclude with a discussion of the implications of our work for both theory and practice.

We believe that this investigation is timely and important for both improving practice and developing theory. Customer satisfaction data collection is typically the single largest item of firms' annual expenditure on market intelligence and is often the only systematic market intelligence that a firm generates (Wilson 2002). Yet there is little or no guidance for managers on how exactly to design and implement CS systems successfully (Piercy and Morgan 1995; Powaga 2002). It is not well understood what the components of such a system should be or how they should be managed to yield maximum benefit to the firm (Griffin et al. 1995; Hauser, Simester, and Wernerfelt 1994; Westbrook 2000). As a result, many CSIU initiatives fail to reach their potential in terms of providing the hoped-for benefits of either increased CS or improved financial performance; this has resulted in a growing frustration among managers with their firms' CS programs (Reichheld 1996; Rigby 1999). A better understanding of CSIU and how best to implement such systems in practice is necessary, or managerial skepticism is likely to grow, and the resources required to support such efforts will be allocated elsewhere (Rust, Zahorik, and Keiningham 1994).

Achieving a better understanding of CSIU is also important with respect to the broader landscape of organizational theory and systems theory in marketing as a whole. Customer satisfaction information usage lies at the heart of firm's market orientation (i.e., the ability of a firm to understand and respond to its environment) and should be a major contributing factor to any link between a firm's degree of market orientation and its financial performance (Hunt and Morgan 1995; Jaworski and Kohli 1993; Narver and Slater

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1990) Developing an improved understanding of firms' CSIU should therefore contribute to the further explication of the underlying processes of market orientation and the theoretical mechanisms by which it is associated with firm performance Moreover, there is growing interest in research that links marketing activities to firms' business performance Customer satisfaction has been identified as a key outcome of marketing activities associated with subsequent business performance (Fornell et al 1996) and therefore is widely viewed as a useful metric in implementing marketing strategy and monitoring marketing and firm performance (Hauser, Simester, and Wernerfelt 1994, Rust et al 2004) Understanding how best to create and manage marketing control systems using appropriate performance metrics such as CS is a potentially important contribution (Morgan, Clark, and Gooner 2002, Srivastava, Shervani, and Fahey 1998)

Theory Framework

Customer satisfaction information usage refers to the processes that a firm uses to monitor, diagnose, and take action to optimize CS We posit four distinct CSIU processes by synthesizing insights from models of information use in marketing information systems, organizational learning in management, market research utilization, and market information processing in marketing First, CS data scanning refers to the generation of CS data This is consistent with the intelligence generation process in market information–processing models (Jaworski and Kohli 1993) and the information acquisition process in organizational learning (Huber 1991) Second, CS data analysis refers to the examination and organization of CS to imbue it with meaning This process is consistent with aspects of the interpretation stage of organizational learning (Crossan, Lane, and White 1999) and of sensemaking in models of organizations as information processing systems (Glazer 1991, Thomas, Clark, and Gioia 1993) Third, CSI dissemination refers to the exchange of CSI within the firm This process is consistent with the dissemination stage of market information–processing (Maltz and Kohli 1996) and organizational learning (Slater and Narver 1995) models and the communication stage of market research utilization models (Menon and Varadarajan 1992) Fourth, CSI utilization refers to how a firm uses CSI to understand the environment, make decisions, and deploy resources This process is consistent with conceptualizations of knowledge utilization in models of market information processing (Moorman 1995) and market research use (Deshpandé and Zaltman 1987)

Three main bodies of literature indicate the importance of firms' CSIU and provide a theoretical foundation linking it to business performance First, the strategic management literature posits that business performance is a function of a firm's ability to process information in ways that enable it to adapt to its environment (Boisot and Child 1999, Cockburn, Henderson, and Stern 2000) Indeed, the systems perspective in management views information processing as the fundamental task of any organization (Daft and Weick 1984, Thomas, Clark, and Gioia 1993) More recent theory developments in this vein focus on models of organizational learning, delineating the processes by which firms create and use knowledge through information processing (Huber 1991) and the benefits of doing so for a firm's ability to adapt to its environment successfully (Crossan and Bedrow 2003) To the extent that CSIU affects a firm's processing of relevant environmental information, and therefore the firm's ability to adapt to its environment, CSIU should contribute to business performance

Second, drawing on the organizational learning perspective, market orientation theory focuses explicitly on learning about markets and posits that firms that are engaged in more extensive market information processing develop superior knowledge about customers, competitors, and channel members (Day 1994b, Sinkula 1994) Firms with superior market orientation develop a "know-what" advantage over rivals that enables them to deploy their available resources in ways that more closely match target customer requirements and thus deliver superior customer value (Hunt and Morgan 1995, Slater and Narver 1998) As a result, market orientation theory indicates that firms with superior CSIU should have superior customer knowledge and be able to develop offerings that better satisfy the needs and wants of target customers (Day 1994a, Jaworski and Kohli 1993, Slater and Narver 1995)

Third, control systems theory indicates that CSIU may provide an important mechanism for directing the firm's resource deployments and the behavior of its personnel Control systems are formalized routines and procedures that use information to maintain or alter patterns in organizational activity (Jaworski 1988, Simons 1995) Control systems theory identifies four core steps in management control systems (1) setting a desired performance standard, (2) collecting and communicating information related to actual performance, (3) comparing this information with the performance standard, and (4) taking corrective action when necessary (Anthony 1988, Green and Welsh 1988) Customers have been identified as an important relational resource for firms (Srivastava, Shervani, and Fahey 1998), and CS has been identified as a leading predictor of firms' financial performance (Fornell 1992) Therefore, CSIU may be an important component of a firm's management control system that aids in monitoring performance (Ittner and Larcker 2003), implementing strategy (Kaplan and Norton 1996), and directing attention and resources toward satisfying target customer needs to develop and protect this relational source of competitive advantage (Griffin et al 1995)

Having identified four CSIU subprocesses suggested in the literature and noting three streams of literature that indicate the importance of CSIU in firm performance, we now turn our attention to the methodology we used in our study to deepen the understanding of firms' CSIU

Research Approach

Researchers have noted that given the undeveloped state of knowledge in this important domain, understanding firms' CSIU requires significant conceptual development (Piercy and Morgan 1995, Westbrook 2000) Inductive field research has been identified as the most appropriate research approach to enhance understanding of phenomena in relatively undeveloped areas of knowledge (Bonoma 1985, Flint, Woodruff, and Gardial 2002, Zaltman, LeMasters, and Heffring 1982) Whereas inductive research in marketing has been most closely equated with the "interpretive" perspective in consumer research, it has also been successfully used to enhance the understanding of key organizational issues (Kohli and Jaworski 1990, Narayandas and Rangan 2004, Workman, Homburg, and Gruner 1998)

The nature of CSIU requires a balance between a "coarse-grained" field research approach to capture the essence of the wide-ranging domain of CSIU and a "fine-grained" approach to identify important variables and relationships that provide both a basis for future empirical research and more specific insights for managers (Eisenhardt 1989, Harrigan 1983) We bridge these conflicting requirements by adopting a discovery-oriented approach (Kohli and Jaworski 1990, Menon et al 1999) Rather than rely on either fieldwork observations (Glaser and Strauss 1967) or existing theory and literature (Srivastava, Shervani, and Fahey 1998), we iteratively synthesize literature and field-based insights to develop a comprehensive conceptual framework that identifies key factors and relationships that enhance the understanding of firms' CSIU (Burawoy 1991, Gioia and Pitre 1990; Workman, Homburg, and Gruner 1998)

The first stage in our research involved using insights from the literature to establish initial boundaries to focus our inquiry and to guide the selection of an appropriate field research sample (Bonoma 1985, Eisenhardt 1989) We reviewed the available literature on CSIU and the broader literature on marketing information systems, organizational learning, management control systems, market information processing, and market research utilization to identify factors that may be important to the understanding of firms' CSIU We used these literature-based insights to develop an initial conceptual framework from which we constructed a semistructured interview protocol for use in open-ended, in-depth interviews (see the Appendix) The interview protocol enabled us to focus our fieldwork investigation while providing the flexibility to incorporate fieldwork observations of issues outside the domain of our initial framework

We then considered the field research sample that may be appropriate Because previous research has not identified important contingencies that may affect CSIU, we adopted a purposive sampling plan to ensure the representation of a wide variety of firms in terms of areas of business activity, geographic scope, and size (Workman, Homburg, and Gruner 1998) We also included a specialist consulting firm in our sample because each consultant's exposure to CSIU in many different firms and industries provides the potential for unique insights

Next, we conducted face-to-face in-depth interviews with individual managers Each interview lasted between 60 and 90 minutes We conducted multiple interviews at each firm in our sample to triangulate and build on information regarding CSIU in each firm (Eisenhardt 1989) In each firm, we attempted to identify and interview designers of CS systems, personnel who were intimately involved in the ongoing operation of CS systems, and managers who we expected to be users of CSI

As we show in Table 1, we interviewed a total of 142 managers in 38 different firms [1] Excluding the specialist consulting firm (for which we focused our interviews on the CSIU of the firm's clients), the 37 firms we examined ranged widely in terms of size and industry type Of the 37, 6 are based outside the United States For 3 firms (AirCo, FilterCo, and ScienceCo), we conducted the interviews at a time when the firms were redesigning their CS systems Given the logistical issues involved in interviewing such a large number of managers in different locations and the desirability of conducting interviews in the same general time period, it was not possible for us to conduct all the interviews personally To balance the competing demands of logistical and time constraints with the need to maintain as much standardization as possible in the field research to ensure comparability (Bonoma 1985, Eisenhardt 1989), we adopted a two-stage approach First, we conducted 47 interviews across 14 firms Even though we guaranteed confidentiality, when research access was granted, most firms identified their CS systems as "commercially sensitive" and would not allow the interviews to be taped Therefore, following established approaches (Workman, Homburg, and Gruner 1998), we took handwritten notes during each interview and elaborated on and transcribed them within 24 hours of the conclusion of each interview

Second, using the experience and insight gained from this first round of interviews, we developed a detailed protocol that we used to train two different groups of graduate students to aid in subsequent data collection [2] The first group of students were participants in an executive MBA program, and the second group were participants in a full-time MBA program who were enrolled in a marketing strategy class For the executive MBA students, we selected employer firms of individual students that were appropriate research sites, and we contacted an identified manager at the firm For the second group, we selected appropriate research sites and again negotiated access We then gathered the graduate students into small teams and trained them to use the interview protocol to collect the required data At least two students conducted each interview to ensure that all required questions and appropriate follow-up prompts were used (Bonoma 1985, Eisenhardt 1989) All the students involved in the interview jointly transcribed it within 24 hours Subsequently, we debriefed the students to clarify any points that arose from the transcribed notes In addition, we required each student group to pool the insights from all the interviews in a particular firm and to produce a written report outlining CSIU in that firm

Although interviewer bias is always a possibility in qualitative data collection, the use of open-ended questions, the involvement of more than one interviewer in the vast majority of interviews, and multiple interviews in each

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[1] To preserve anonymity, we use industry- or market-related pseudonyms when we refer to individual firms

[2] This involved carefully explaining the detailed protocol prepared on the basis of our interviews, role playing of interviewees by the primary researchers with feedback to students, and question-and-answer sessions with feedback to students following their initial interviews

TABLE 1
Fieldwork Sites

Firm and CSIU Type	Firm and Market Characteristics	Number of Interviews and Interviewee Position Titles
AirwayCo control	Large publicly traded Europe-based airline with a strong market share on most routes but facing both consolidation and new low-cost, short-haul entrants	1 Head of market research
ITC control	One of the largest global information technology firms with a strong market share in most strategic business units in a dynamic and highly competitive market	3 Director of marketing, managers of CS and product marketing
TelCo control	Large European telecommunications firm with a dominant share of domestic markets and a smaller share of European markets in a dynamic and somewhat regulated market	1 Market research manager
PowerCo control	Large regional investor-owned utility (electricity and gas) supplier in a heavily regulated industry with quasi monopoly	3 Quality consultant, senior corporate planner, vice president customer service
InsCo control and learning	One of the largest national life insurance and investment services providers in a somewhat dynamic and regulated market environment	3 Market research manager, directors of voice of the customer and service quality
ImageCo control	One of the largest global imaging supplies and services provider in a declining and highly competitive core market with dynamic new technologies emerging	2 Director of business research, director of CS
GolfCo limited	Regional medium-sized leisure and hospitality firm in an increasingly saturated and fragmented market that is highly competitive	2 Directors of business development and associate development
ConsultCo not applicable	Medium-sized global marketing research and consulting with a high share of the specialist satisfaction-related niche	3 Managing consultant, senior consultant, program director
FilterCo limited	One of the largest national industrial filter manufacturers and suppliers in a competitive and maturing market that is consolidating	9 Operations director, managers of marketing, sales, customer service, channels, engineering development, quality, planning, and channel development
AirCo control	Medium-sized regional industrial air services supplier with a relatively small share of a fragmented market in a relatively simple environment	5 Chief executive officer, account representative, customer service representative, sales manager, operations manager
PhotoCo control	Largest firm in global photo processing equipment and services in a highly competitive and mature market that is increasingly driven by new technology	2 Market analyst, marketing program manager
DrugCo limited	Large global pharmaceutical company with a high market share in several different therapeutic markets that are regulated and competitive	1 Product manager
ScienceCo limited	Large European scientific equipment supplies and services with a large global share of several relatively uncompetitive and stable niche markets	9 General manager, directors of quality assurance and operations, managers of service, sales operations, channels, quality assurance, customer service, and operations
ResortCo control and learning	Small local hotel and golf club with a relatively large market share in a particular local niche market that is stable and relatively uncompetitive	6 Director of sales and marketing, reservations manager, director of catering, operations manager, operations supervisor, reception manager

TABLE 1
Continued

Firm and CSIU Type	Firm and Market Characteristics	Number of Interviews and Interviewee Position Titles
InnCo control and learning	Small local hotel and restaurant with a relatively large market share in a particular local niche market that is stable and relatively uncompetitive	5 General manager, assistant manager, front office manager, restaurant manager, housekeeping manager
GymCo limited	Small local consumer fitness facility with a small share of a growing but competitive and fragmented local market	4 General manager, sales manager, front desk manager, fitness coordinator
BankCo control	Large regional consumer and business banking services with a relatively large share of a competitive and consolidating regional banking market	4 Vice president CS, market research manager, regional president, regional president
HospitalCo control	Large regional teaching hospital with a high market share in several specialties and a quasi monopoly for these in a local, regulated market	3 Managers of marketing and customer quality information, vice president of marketing and public affairs
SportCo control and learning	Medium regional professional sports franchise in the national league with a local monopoly for this sport and a large share of the total regional sports market	3 Assistant director marketing, promotions manager, vice president marketing
AutoCo control and learning	One of the largest global luxury automobile manufacturers with a relatively large share of a competitive and consolidating market	3 CS supervisor, managers of customer knowledge and CS research
MarketCo learning	Small local gourmet and specialty food retailer with a large share of a relatively uncompetitive local niche market	2 General manager, floor manager
HotelCo control	Small local historic hotel with a large share of a niche market that is becoming increasingly competitive	4 Director of operations, managers of front office, housekeeping, and concierge services
WireCo learning	One of the largest global providers of financial market information services in a competitive, maturing, and consolidating market	3 Managers of sales, service development, and customer service
CellCo control	One of the largest global mobile telephone infrastructure manufacturers with a large share of a highly competitive but rapidly growing market	6 Directors of global accounts, quality, and sales, managers of brand research and analysis, operations development, and research
HotelGroupCo control and learning	Large Latin American hotel group with a large domestic market share and a smaller share in other Latin American countries in a competitive market	4 General manager, manager of food and beverage, manager of reception, guest satisfaction system coordinator
DevelopCo learning	Small slow-growth regional technology transfer services with a quasi monopoly in a particular local niche market	4 Director, associate director, chair of technology review panel, technology development associate
PCHelpCo control	Medium personal computer customer service center serving customers of one of the largest global personal computer manufacturers in a competitive and maturing market	6 Managers of customer support, help center, operational service, staffing and planning, quality assurance, and development projects
FinanceCo control and learning	Large regional consumer and business banking services with a relatively large share of a competitive and consolidating regional banking market	4 Chief executive officer, head of customer service, managers of customer service and group retail banking

TABLE 1
Continued

Firm and CSIU Type	Firm and Market Characteristics	Number of Interviews and Interviewee Position Titles
CivilCo learning	Medium regional civil engineering services with a small share of fragmented and competitive market and a larger share in some specialist niches	3 Vice president of marketing, division vice president, office manager
TechCo limited	Medium national technology research, consulting, and services organization with a small share of a fragmented and dynamic market	3 Director of center, assistant director, program area manager
HealthCo control	Medium regional health maintenance organization with relatively small share of regional market in a competitive, consolidating, and regulated market	4 Chief executive officer, vice president service excellence, director of medical economics, medical director
MedicCo control and learning	Large regional hospital with significant and stable share of increasingly competitive local market	3 Strategic planning director, market analyst, case manager
ShieldCo control and learning	Large regional health insurance provider with largest share of regional market in competitive, consolidating, and regulated market	3 Vice presidents of CS and market research, market research manager
LightCo control	Large regional investor-owned electric utility in a regulated industry with a quasi monopoly in the geographic markets in which it operates	3 Vice president CS, managers of market research and customer service
ChemicalCo control	Large global industrial hygiene services with a relatively large share of a fragmented, competitive, and increasingly dynamic market environment	8 Vice presidents of national accounts, sales, and marketing, managers of marketing, sales information, customer reporting, technical services, and customer service
NetworkCo control	Large global telecommunications technology provider with a subordinate share in a consolidating, highly competitive, and dynamic market	4 Vice president of development, managers of customer value and customer accounts, market research services director
CruiseCo learning	Large national cruise line with a growing share of a niche market in a growing, consolidating, and dynamic market	3 Vice president of marketing, accommodation director, consumer insight manager
CarCo control	One of the largest global automobile manufacturers with a significant share of all of the global market in a consolidating and highly competitive industry	3 Vice president customer knowledge, managers of customer loyalty and group CS

research site helped reduce the likely presence and impact of such bias in our study (Narayandas and Rangan 2004, Strauss and Corbin 1998) We then reviewed all 142 individual interview transcripts and the reports on each firm that the graduate students produced We used the insights generated from this review to modify and refine the initial literature-based framework We then used the revised conceptual framework to guide a second, more focused review of the literature Our aim was to gain theoretical support (or a lack thereof) for the insights that had emerged thus far In addition, during this stage of the research, we used the emerging conceptualization of CSIU as the basis of interview discussions with three academics (all of whom have studied various aspects of CSIU) to provide insights that may not have been available from the fieldwork or the existing literature

In the final stage of our research, we discussed the conceptual framework and fieldwork observations regarding CSIU practice in a focus group setting with 12 managers from seven different firms The managers in our focus group were intimately connected with some aspect of CSIU and worked in a wide range of industries, none of which had been a part of our fieldwork interview sample This stage of the research provided an additional form of "triangulation" (Deshpandé 1982, Menon et al 1999), which enabled us to assess the face validity of our conceptual framework and our fieldwork insights It also enabled us to refine key CSIU constructs, explicate expected relationships, and achieve a balance among theoretical rigor, domain coverage, model parsimony, and managerial relevance (Zaltman 1997).

CSIU

We now turn to our fieldwork findings about CSIU, drawing particular attention to aspects of CSIU in which we observed substantial departures from extant theory prescriptions. We summarize the most salient characteristics of each of the four CSIU subprocesses in Figure 1 and the pertinent numerical data from our fieldwork observations in Table 2.

CSIU Subprocesses

CS data scanning. We identified four salient aspects of CS data scanning: formalization, frequency, measures, and sampling. "Formalization" refers to the degree to which standardized rules and procedures are used to gather CS data (Menon et al. 1999). Our fieldwork indicates that managers view formalization as enabling CS scanning efficiencies through specialization and routinization. Consistent with institutional theory (Feldman and March 1981; Zeitz, Mittal, and McCauly 1999), formalization is also sometimes viewed as having a symbolic value in signaling the importance of CSI within the firm. In addition, our fieldwork suggests that formalization is viewed as useful in minimizing potential risks associated with data collection. For example, at CellCo, the CS program manager, who championed a more formalized data collection system, noted, "We want to avoid the risk that different parts of our organization approach the same customers at different times with almost the same questions, which would certainly annoy customers." Despite these benefits, we observed that 10 of the 37 companies in our sample did not have formal CS data collection processes. The literature also advocates complementing formalized CS data collection processes with informal customer feedback to achieve richer insights (Chakrapani 1998; Day 1994b). In the 27 firms with formalized systems, our fieldwork revealed some support for normative propositions that supplementing formalized CS data-scanning processes with more informal CS data collection can enhance the customer knowledge generated. For example, a manager at CruiseCo commented, "I also sometimes undertake some informal qualitative research work. It's the only way to really understand what drives customers scoring a '4' versus those scoring a '5' in our surveys."

"Frequency" of CS data scanning refers to the number of times various scanning activities are performed in a given time frame. In our fieldwork, we observed that firms often invest in several different CS scanning activities. The number of different CS data collections (i.e., separate data collection exercises that generate CS data) ranged from one to six for each of the 37 firms in our sample (mean = 2.11, mode = 1). Normative prescriptions suggest that CS data scanning should be a "continuous process" (Chakrapani 1998; Day 2000). However, in our fieldwork, we found large variations in CS scanning frequency with firms that collected CS data—daily: 15 firms, weekly: 2 firms, monthly: 6 firms, quarterly: 2 firms, biannually: 3 firms, annually: 5 firms, and less frequently: 4 firms.

"Measures used" refers to the specific indicators of CS and related constructs with which firms collect data. The consumer behavior (Spreng, MacKenzie, and Olshavsky 1996; Yi 1990) and managerial (Naumann and Giel 1995) literature suggest a wide range of different CS measures. Normative prescriptions advocate capturing standardized CS data on attribute-level and overall satisfaction and on important postpurchase intentions to enable tracking over time and offer diagnostic insights; normative prescriptions also advocate open-ended questions to facilitate a richer understanding (Gale 1994; Hanan and Karp 1989). In the 78 different CS data collections across the 37 firms in our fieldwork, we observed that attribute-specific CS questions were the most common and were used in 64 data collections, overall CS questions were used in 58 data collections, likelihood-to-recommend questions were used in 40 data collections, future purchase intention questions were used in 38 data collections, and open-ended questions of various types were used in 28 data collections. In addition, as we show in Table 2, our fieldwork revealed that firms use several different data collection mechanisms to collect CS data on these measures.

"Sampling" refers to the ways that firms identify and target customers from whom they collect CS data. We observed significant sampling differences among firms. Our fieldwork suggests that there are particularly important differences in the identification of strategic versus other types of existing customers and the inclusion of "lost" and competitors' customers in the sample. The literature suggests the collection of CS data from representative samples that include all current customers (with the ability to identify key accounts or strategic customers separately), lost customers, and competitors' customers (Griffin and Hauser 1993; Reichheld 1996; Rust, Zeithaml, and Lemon 2000). In our fieldwork, all 37 firms collected CS data from a sample of all of their current customers. However, only 7 firms separately identify and collect CS data from strategic customers, only 4 firms collect data from competitors' customers, and only 2 firms collect data from lost customers.

CS data analysis. Our research revealed three particularly important characteristics of the CS data analysis process: data integration, analytical sophistication, and relationships examined. "Data integration" refers to the degree to which CS-related data from different sources are combined and considered holistically as a single data set (Zahay and Griffin 2002). We found that many firms collect CS-related data of multiple kinds and through multiple scanning activities. For example, many of the firms we studied track CS scores and have customer complaint monitoring systems. The literature prescribes integrating such diverse CS-related data for analysis to provide data synergy benefits and enable richer interpretation (Davenport and Klahr 1998; Powaga 2002). The value of such CS-related data integration was also emphasized in our interviews. For example, a research manager at ImageCo commented, "Pulling all the formal and informal CS data from different sources together provides real opportunities for insight." However, the firms in our sample varied in their efforts to integrate diverse sets of available CS-related data, and only 8 firms considered CS-related data from different sources

FIGURE 1
A Framework for Understanding Firms' CSIU

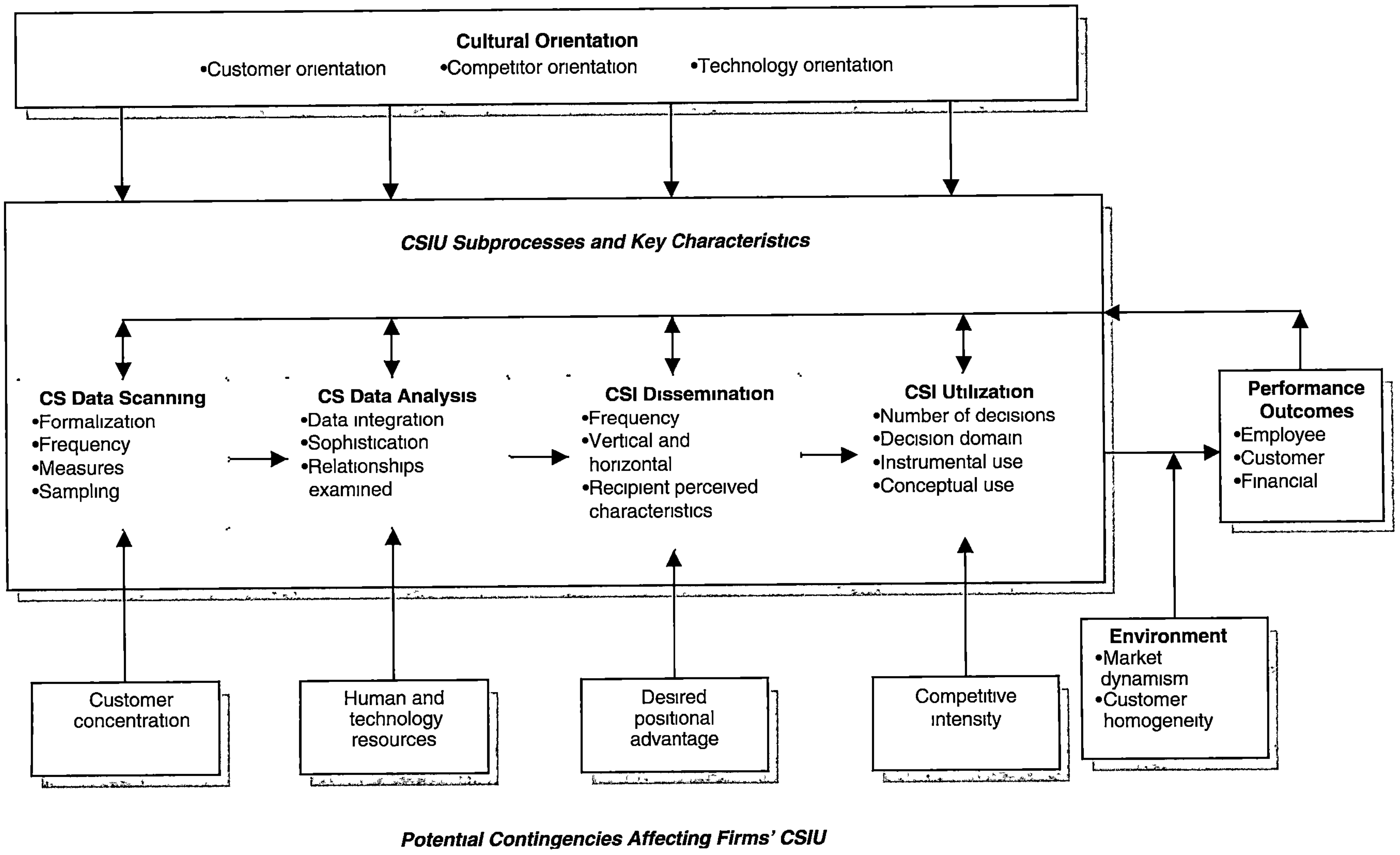

TABLE 2
Prescription Versus Fieldwork Evidence

CSI Elements	Literature Prescription	Fieldwork Findings	Possible Contingencies
Scanning formalization	Formalized systems complemented by informal customer feedback	In total, 27 of the 37 (73%) firms have formal CS data collection systems Few of these 27 integrate or use any additional informal customer feedback	Control versus learning focus of CSIU Customer concentration
Scanning frequency	Continuous CS data collection to provide "real-time" feedback	The 37 firms engage in 78 different CS data collections (range = 1–6, mean = 2 11, and mode = 1) Frequency range for the 78 different CS data collections across our sample •Daily 24 (31%) •Weekly 3 (4%) •Monthly 10 (13%) •Quarterly 11 (14%) •Biannually 10 (13%) •Annually 14 (18%) •Less frequently 6 (8%) Frequency range for CS collection among the 37 firms •Daily 15 (41%) •Weekly 3 (8%) •Monthly 8 (22%) •Quarterly 9 (24%) •Biannually 6 (16%) •Annually 11 (30%) •Less frequently 4 (11%)	Control versus learning focus of CSIU Cultural orientation
Scanning CS measures	Multi-item scales, relative to expectations, importance weights, price, nonattribute cues, postpurchase attitudes and behaviors	In the 78 CS data collections and in 37 firms, frequency of measures used •Attribute-level satisfaction 64 (82%) and 34 (92%) •Overall satisfaction 58 (74%) and 32 (86%) •Likelihood-to-recommend 40 (52%) and 20 (54%) •Purchase intentions 38 (49%) and 18 (49%) •Open-ended questions 28 (36%) and 18 (49%) Data collection mechanisms used in the 37 firms •Mail surveys 18 (49%) •Telephone surveys 18 (49%) •"In-venue" surveys 9 (24%) •Online surveys 5 (14%) •Focus groups 4 (11%) •Depth interviews 2 (5%) •Mystery shoppers 2 (5%)	Control versus learning focus of CSIU Cultural orientation
Scanning sampling approach	"Strategic" and other existing customers, lost customers (defectors), and competitors' customers	Sampling approaches used in the 37 firms •All existing customers 37 (100%) •Separate strategic customers 7 (19%) •Competitors customers 4 (11%) •Lost customers 2 (5%)	Control versus learning focus of CSIU Cultural orientation
Analysis CS data integration	Customer insight database with CS monitoring data, complaint data, customer service data, customer behavior data, and so forth	No integration of CS data with any other related customer data in 29 of the 37 firms	Availability of human and technology resources Control versus learning focus of CSIU Cultural orientation

TABLE 2
Continued

CSI Elements	Literature Prescription	Fieldwork Findings	Possible Contingencies
Analysis relationships examined	Drivers of CS and other postpurchase phenomenon, CS relationships with purchase behavior, internal metrics, and business performance outcomes	Relationships examined in the 37 firms •Current attribute-level and overall satisfaction and past scores 34 (92%) •Attribute-level satisfaction and overall satisfaction 14 (38%) •Overall satisfaction and future purchase intentions 7 (19%) •Overall satisfaction and likelihood-to-recommend 2 (5%) •CS and subsequent customer behavior 1 (3%) •CS and internal performance metrics 1 (3%)	Availability of human and technology resources Control versus learning focus of CSIU Cultural orientation
Analysis analytical sophistication	Multivariate assessment of measurement properties and relationships, time-series analyses to establish causality	Analyses performed in the 37 firms •Univariate analyses 34 (92%) •Multivariate analyses 14 (38%) •No quantitative analyses 3 (8%)	Availability of human and technology resources Control versus learning focus of CSIU Cultural orientation
Dissemination frequency	Frequent, if not continuous, dissemination of CS scores and data	Frequency of CS dissemination in the 37 firms •Daily 2 (5%) •Quarterly 9 (24%) •Weekly 1 (3%) •Monthly 10 (27%) •Annually 1 (3%) •Biannually 2 (5%) •Less frequently 8 (22%)	Desired positional advantage Control versus learning focus of CSIU Cultural orientation
Dissemination vertical and horizontal	CS monitoring data made accessible to everyone in the firm	CS dissemination targets in the 37 firms •Upward to senior managers 32 (86%) •Downward to frontline employees 23 (62%) •Horizontal to other departments 25 (68%)	Desired positional advantage Control versus learning focus of CSIU Cultural orientation
Dissemination perceived CSI characteristics	Users perceive CSI as valid and reliable, timely, relevant, and actionable	Variation in user reliability and validity assessments, CSI disseminated often viewed by potential users as "too late" to be considered timely even if relevant, no "causes" or "fixes" for CS-related issues or problems identified	Desired positional advantage Control versus learning focus of CSIU Cultural orientation User awareness of CSI properties
Utilization number of decisions	CSI widely used in most decisions that may affect customers	CSI use in the 37 firms •Instrumental use 31 (84%) •Conceptual use 9 (24%)	Dissemination of CSI Desired positional advantage Competitive intensity Control versus learning focus of CSIU Cultural orientation

TABLE 2
Continued

CSI Elements	Literature Prescription	Fieldwork Findings	Possible Contingencies
Utilization decision domains	CSI should be an important input in decisions across all functional areas	CSI mainly used in customer service decision making	Dissemination of CSI Desired positional advantage Competitive intensity Control versus learning focus of CSIU Cultural orientation
Utilization instrumental use	CSI as a key input in any decisions that affect the value delivered to customers, CS data as an important component of reward and evaluation systems	CSI important in customer service decisions, few formal links to reward and evaluation system	Dissemination of CSI Desired positional advantage Competitive intensity Control versus learning focus of CSIU Cultural orientation
Utilization conceptual use	CS monitoring as a mechanism for organizational learning, CSI as a key input into strategic planning	CSI use in the 37 firms •Primarily as a performance-monitoring system component 22 (59%) •Primarily as a tool for learning about customers 15 (41%)	Dissemination of CSI Desired positional advantage Competitive intensity Control versus learning focus of CSIU Cultural orientation

simultaneously in analyzing CS Many of the 29 firms that undertook no data integration viewed this as a weakness in their CSIU

"Analytical sophistication" refers to the complexity of the statistical analysis approaches used to interpret and derive meaning from CS data The literature advocates using sophisticated multivariate data analyses in analyzing CS data (Anderson and Mittal 2000) However, our fieldwork indicates wide variation in analytical sophistication among firms For example, of the 37 firms in our fieldwork sample, 3 undertake no quantitative analysis at all, and 34 undertake univariate analyses, primarily calculating means, frequencies, and trend lines for attribute-level and overall CS scores However, only 14 of these firms also use more sophisticated multivariate analyses, primarily multiple regression analyses of the relationships between CS and individual attributes and in constructing overall CS "index" scores Despite this, our fieldwork indicates that managers in firms that use more sophisticated multivariate analyses believe that deeper and more actionable insights are realized through the firm's CS data analysis

"Relationships examined" refers to the linkages among variables that are studied in CS data analysis Our fieldwork suggests that analyzing relationships between CS drivers and CS and between CS and other internal metrics and performance outcomes is an important characteristic of a firm's CS data analysis The literature suggests examining relationships between overall CS and (1) attribute-level performance to identify CS drivers (Chakrapani 1998, Sharma, Niedrich, and Dobbins 1999), (2) postpurchase phenomenon to identify drivers of buying and recommendation behavior (Gale 1994, Perkins 1993), and (3) other internal performance metrics to understand the firm's "service-profit" chain and validate the firm's performance-monitoring system (Anderson and Mittal 2000, Rust, Zahorik, and Keiningham 1994) In our fieldwork sample, 34 firms relate current attribute-level and overall CS to prior scores in their CS data analysis However, only 14 firms relate attribute-level satisfaction to overall CS, only 7 firms relate overall CS to future purchase intentions, and only 2 firms relate CS to likelihood-to-recommend We observed regular CS data analyses that examined linkages between CS and customers' subsequent purchase behavior in only 1 firm (CarCo) Furthermore, we encountered efforts (single, isolated experimental projects) to relate CS with other internal performance metrics, such as employee satisfaction and sales, in only 1 firm (AirwayCo) None of the firms in our sample had ever tried linking CS data to their financial performance

CSI dissemination A firm often generates CS data in one particular department in the firm (e g , marketing research, customer service department), whereas employees acting on that information reside in various other departments of the organization Therefore, it is crucial that CSI is disseminated to these internal audiences (Day 2000) Our fieldwork indicated three important aspects of CSI dissemination frequency, vertical and horizontal dissemination, and recipient perceptions "Frequency" refers to the number of CSI dissemination events during a given period of time (Fisher, Maltz, and Jaworski 1997) The literature prescribes frequent dissemination to emphasize the value of CSI and to provide personnel with timely information for decision making (Dutka 1993, Maltz and Kohli 1996) Our fieldwork indicates that managers believe that frequent dissemination leads to CSI being more routinely used For example, FinanceCo senior managers view their monthly dissemination of CSI to all branches as key in maintaining a customer focus One respondent indicated, "The results are widely anticipated and a great source of excitement for these [front-line service] employees" Conversely, at DrugCo, one manager commented, "Communicating satisfaction research here is so rare that it never becomes a part of what our product and sales managers routinely think about" Table 2 reveals wide variance in CSI dissemination frequency among the 37 companies in our sample, more than half the firms disseminate CSI quarterly or less frequently Notably, CSI is often not disseminated as frequently as it is collected and analyzed in our fieldwork sample

The extent of "vertical and horizontal dissemination" refers to the degree to which CSI is disseminated up and down the firm's hierarchy and across functional areas Our fieldwork suggests that managers view such dissemination as an important determinant of CSI use in decision making As one ConsultCo manager commented, "Measurement doesn't change anything, people change things So you have to make sure you get the satisfaction data in the hands of whoever may be able to use it" The literature advocates horizontal CSI dissemination to focus attention on the CS outcomes of all activities within the firm (Griffin et al 1995, Hanan and Karp 1989) and vertical dissemination to provide important control information to senior managers and information that is useful in guiding the behavior of frontline employees (Davenport and Klahr 1998, Gale 1994) However, we observed that 12 of the 37 firms in our sample do not undertake any horizontal dissemination of CSI In an extreme example at NetworkCo, a design vice president was amazed to discover from the researcher conducting the interview that the firm had an extensive system for collecting satisfaction data from its largest customers Furthermore, 5 of the 37 firms in our sample do not engage in upward vertical dissemination of CSI, and 14 do not routinely engage in any downward vertical dissemination to frontline employees

"Recipient perceptions" refer to the perceived characteristics of CSI among those to whom it is disseminated Both fieldwork observations and the literature suggest that such user perceptions are critical determinants of the utilization of CSI (Moorman, Deshpandé, and Zaltman 1993) Our fieldwork suggests that three types of recipient perceptions are of particular importance (1) Accuracy is the degree to which recipients view the CSI as valid and reliable (Moenaert and Souder 1990, Piercy and Morgan 1995), (2) usability is the degree to which recipients perceive CSI to be relevant and timely (Maltz and Kohli 1996, Menon and Varadarajan 1992), and (3) diagnosticity is the degree to which CSI enables the recipient to understand the drivers of the level of CS (Sharma, Niedrich, and Dobbins 1999, Woodruff 1997) For example, CellCo's account managers suggested that they ignore the CSI they receive because they believe that the CS questions are flawed, thus producing invalid responses One manager commented, "The people [collecting CSI data] have no clue about our industry or our customers" In another example, managers at MedicCo reported being reluctant to attach much importance to CSI in making decisions because the information was typically five- to six-months old when they received it Furthermore, supporting the importance of diagnosticity, a manager at InsCo commented, "People here say 'don't give me numbers, just tell me what I got to do!'"

CSI utilization Our fieldwork indicates that a firm's CSI does not have value unless it is translated into appropriate strategy and tactics For example, one vice president stated, "We know which of our clients are happy with us and which aren't We know that before we call them The real question is what do we do with the [CS survey] information once we get it?" The literature suggests that firms should use CSI as an important input in almost all significant decisions across all functional areas (Hanan and Karp 1989, Jaworski and Kohli 1993) However, our fieldwork reveals that most of the firms in our sample use CSI as an input in only a limited number of decisions, most of which are in the domain of customer service and account management The degree to which CSI is used in decisions outside these domains appears to be an important feature that distinguishes CSI utilization differences among firms For example, a PowerCo manager commented, "It's amazing the number of decisions that impact customers that get taken here without considering our satisfaction data" Conversely, at SportCo, senior managers indicated that CSI is an important input in significant product resource allocation decisions with respect to roster changes and free-agent hires

Information utilization has been theoretically conceptualized in terms of instrumental and conceptual use (Menon and Varadarajan 1992), and the literature suggests that firms should benefit from both (Day 2000, Slater and Narver 1998) "Instrumental" use refers to using information directly to solve a specific problem or make a particular decision (Moorman 1995) Our fieldwork suggests that in most firms, CSI utilization is typified by instrumental use, such as the identification of key drivers of overall satisfaction and the execution of decisions designed to manage the firm's performance on these attributes (Sharma, Niedrich, and Dobbins 1999) Of the 37 firms in our sample, 31 engage in some form of instrumental CSI utilization of this kind For example, at FinanceCo, CSI indicated that customers were dissatisfied with the reliability of the bank's automated teller machines Therefore, senior managers invested $10 million to upgrade metro location machines, and with this aspect of the bank's service, CS subsequently increased significantly

"Conceptual" use refers to using information to enhance thinking processes that do not lead to short-term actions (Menon and Varadarajan 1992) For example, conceptual use of CSI may entail learning about customer preferences for existing products Therefore, it is more forward looking and enables managers to identify opportunities for developing new offerings (Moorman 1995) However, we identified only eight firms in our sample that exhibit conceptual utilization of CSI For example, at MedicCo, CS data trends led managers to conclude that customers had pastoral care needs that were not being met This resulted in the development of a new set of services that was radically different from those previously available More typically, however, our fieldwork suggests that managers often consider the CSI they receive as tactical rather than strategic in terms of the revealed insights

CSIU Outcomes

In our fieldwork, many managers voiced a strong belief that effective CSIU is associated with superior business performance Although we were not able to verify this empirically—and notably, none of the firms in our sample had ever tried to do so—these beliefs are consistent with the theoretical (Anderson and Mittal 2000, Rust, Zahorik, and Keiningham 1994) and managerial (Flanagan and Fredericks 1993, Naumann and Giel 1995) literature Our fieldwork suggests that CSIU is related to three different types of performance outcomes First, both the literature and the fieldwork suggest a relationship between CSIU and employee outcomes (Heskett et al 1994) For example, LightCo managers reported an increase in team spirit among employees following the introduction of a new CS system In general, managers in our fieldwork believe that by signaling a clear and believable customer focus, firms that invest greater time and effort in CSIU have more satisfied employees Most managers also believe that increases in employee satisfaction associated with CSIU subsequently lead to increased CS Notably, however, at AirwaysCo, an attempt to link CS to employee satisfaction indexes revealed a negative correlation, and the trends in these metrics moved in opposite directions over time A similar experience was recounted in our focus group, suggesting that, in general, though managers believe that there is a positive monotonic relationship between employee satisfaction and CS, the relationship is more complex

Second, our fieldwork suggests that there is a relationship between CSIU and customer perceptions and behaviors Consistent with the literature (Anderson and Mittal 2000, Kamakura et al 2002), managers believe that effective CSIU is directly related to CS, behavioral loyalty (retention, price sensitivity, and share of business), and resulting sales revenue (sales growth and market share) For example, managers at ShieldCo directly attributed its recent return to growth (after four years of steady decline) to its investment in CSIU In addition to these "effectiveness" market performance dimensions, the literature indicates that CSIU may also be related to adaptive performance in terms of the firm's ability to develop new products (Griffin and Hauser 1993) This was supported in our interviews, in which several managers suggested that insights from CSI provided a source of ideas for product development and refinement, as well as information relevant to the positioning and launching of new products

Third, our fieldwork indicates that CSIU is related to firms' financial performance For example, WireCo managers stated that the firm's customer service reputation, which they attributed in large part to its CSIU, enabled them to charge higher prices than competitors and achieve higher margins while maintaining customer retention and enjoying above-industry sales growth Our fieldwork indicates that managers believe that CSIU contributes to financial performance by prioritizing resource allocation to the areas that are most likely to maximize CS For example, managers at CarCo, which is widely viewed as one of the most efficient auto manufacturers, indicated that the firm's CSI drives almost all product and even component redesign decisions Analogous to the efficient market hypothesis in capital markets, our fieldwork suggests that improvements in CS-related information flows within firms improve the efficiency of resource allocations in their "internal capital markets" (Anderson and Mittal 2000, Rust, Moorman, and Dickson 2002) For example, CSI led ShieldCo managers to halt a new service development project and, instead, to allocate resources to advertise more heavily two existing services that seemed to link directly to observed weaknesses in two particular drivers of CS A manager commented, "The market now perceives considerable value from these service 'enhancements,' yet the cost to the company is minimal"

CSIU Variance Among Firms

In addition to the divergence between CSIU theory prescriptions and the fieldwork reality we previously described, we also observed wide CSIU variance among the firms in our sample Assuming that managers are acting rationally, such variance indicates that there are contingency factors that lead to interfirm CSIU differences Our fieldwork suggests several factors that affect firms' CSIU We identify particular contingencies observed in our fieldwork and how these factors may affect individual CSIU subprocesses, we also examine a firm's cultural orientation, which our fieldwork indicates is a contingency that affects a firm's entire CSIU

Contingencies Affecting CS Data Scanning

Our fieldwork indicates that customer concentration (i e , the amount of a firm's output purchased by a small number of customers) affects firms' CS data scanning High customer concentration implies a larger risk to firms in losing such important customers, providing a greater incentive to understand and monitor their satisfaction (Li and Calantone 1998) For example, NetworkCo established a separate unit and a formal system to track the CS of its 12 largest customers, because these customers accounted for the majority of the firm's revenue, dissatisfaction among any one of them could risk significant revenue loss Customer concentration also implies more powerful customers that may mandate that their suppliers use particular CS systems, as was the case at TechCo (cf Zeitz, Mittal, and McCauly 1999)

The cultural orientation of a firm also appears to affect CS data scanning The literature identifies three major cultural orientations among firms customer orientation, competitor orientation, and technology orientation (Day and Nedungadi 1994, Kohli and Jaworski 1990, Narver and Slater 1990) We observed that customer- and competitor-oriented firms in our sample engaged in more frequent CS data collection, were more likely to capture data on customers' postpurchase intentions, and more often included key accounts and competitors' customers in their CS sampling frame than did firms with a strong technology orientation Our fieldwork also suggests that customer-oriented firms are particularly likely to measure CS relative to customer expectations, whereas competitor-oriented firms are most likely to measure CS relative to competitors We also observed that technology-oriented firms appear to be the most likely to sample the firm's newest customers in CS data collection

Contingencies Affecting CS Data Analysis

An important contingency that our fieldwork revealed is firms' human and technology resources For example, ShieldCo managers identified their inability to make the different systems used to collect and store customer account, inquiry, complaint, and satisfaction data to "talk to each other" as a major weakness in their CS data analysis They expected that the firm's investment in a new enterprise resource-planning system would enable them to link these diverse sets of CS-related data in the future From an analytical sophistication perspective, managers in several firms identified the statistical knowledge and skills of personnel involved in analyzing and managing CS data as key Even when firms outsource data analysis to specialist vendors, managers still need sufficient statistical knowledge to ask for and understand sophisticated CS data analyses As one vendor in our focus group commented, "If they [the client's vendor manager] cannot fully comprehend and explain the dynamics of satisfaction—interaction terms, nonlinearities, causality directions, [and so forth]—to their bosses and peers, then they don't want to hear the realities of what their satisfaction data are saying"

Our fieldwork indicates that the cultural orientation of the firm is also an important determinant of CS data analysis Surprisingly, given our preceding observation, we found that customer- and competitor-oriented firms in our sample were the most likely to integrate data from multiple different sources in analyzing CS data Because firms with a strong technology orientation may be expected to have greater technology resources, this suggests that access to technology provides the ability but not necessarily the motivation to integrate diverse sets of CS-related data We also observed that firms with a strong technology orientation were less likely to examine relationships between attribute-level and overall satisfaction and between satisfaction and loyalty in their CS data analysis than were more customer- and competitor-oriented firms

Contingencies Affecting CSI Dissemination

Our fieldwork suggests that the positional advantage pursued by a firm affects its CSI dissemination We observed that firms emphasizing revenue enhancement exhibited more extensive dissemination of CSI than did firms pursuing a cost-based competitive advantage (Rust, Moorman, and Dickson 2002) For example, one of the most extensive CSI disseminators in our sample was AutoCo A manager reported, "It's all about quality and satisfaction here We never compete on price" Although the literature suggests that firms pursuing cost-based strategies must maintain acceptable CS levels to achieve competitive advantage (Porter 1980), our fieldwork indicates that such firms are much less likely to disseminate CSI widely For example, at PhotoCo, CS data dissemination is limited A manager explained, "We want to keep our peoples' focus on enhancing our profitability by driving productivity"

Our fieldwork indicates that the cultural orientation of the firm also affects CSI dissemination We observed that customer- and competitor-oriented firms in our sample engaged in much greater dissemination of CSI For example, at WireCo, which views itself as customer focused, managers indicated that after CSI is collected and analyzed, it is quickly and widely shared in the firm to maximize the ability of as many decision makers as possible to use it Similarly, ImageCo, which views itself as being strongly competitor focused, expends considerable resources in the blind tracking of customer and prospect satisfaction with both the firm's own products and those of its major competitors This CSI is quickly and widely disseminated in the firm and is viewed by most recipients as both valid and useful

Contingencies Affecting CSI Utilization

Our fieldwork suggests that the competitive intensity of a firm's marketplace is an important factor affecting CSI utilization Firms facing intense competition appear to use CSI in more decisions and across more diverse areas than do firms facing less competitive pressure For example, at HopsitalCo and PowerCo, both of which enjoy a quasi-monopoly position in their geographic marketplaces, managers reported using CSI in a limited number of tactical decisions, primarily in the area of customer service Conversely, firms facing intense competition, such as InsCo, CruiseCo, and CarCo, reported a greater utilization of CSI in making a wide range of strategic and tactical decisions across a wide range of business activities

The cultural orientation of the firm also appears to affect CSI utilization We observed that firms in our sample with strong customer or competitor orientation were more likely to make greater conceptual and instrumental use of CSI and to use CSI as an important input across a broader range of decisions than were firms with a technology orientation For example, TechCo, a firm described as "heavily technology focused," has a CS data collection system in place for only one of its customers, and this was at the insistence of that customer This CSI is accessed only by the program director in the firm, who views it as a "[public relations] exercise to keep this particular customer on board" and who reported using this CSI for no other purpose Conversely, managers at CruiseCo, one of the most customer-oriented firms in our sample, report using CSI in almost every decision made within the firm

Contingencies Affecting Relationships Between CSIU and Firm Performance

The normative literature posits that CSIU affects performance outcomes under all conditions (Dutka 1993, Hanan and Karp 1989, Sharma, Niedrich, and Dobbins 1999) However, our fieldwork indicates that the link between CSIU and firm performance may be moderated by factors in the firm's environment Two such moderating factors that were suggested are "customer homogeneity" and "market dynamism" When customers are heterogeneous in their preferences, their key satisfaction drivers and the nature of the satisfaction–retention–profitability linkages should differ markedly (Anderson and Mittal 2000) Our fieldwork suggests that in highly heterogeneous customer markets, CSIU distinguishes a firm's ability to understand and effectively segment its markets and deliver higher satisfaction levels to different groups of customers For example, ShieldCo managers indicated that CSIU helped them segment their markets and match their service offerings better with each segment than their rivals However, when customers are homogeneous, satisfaction drivers may become well known in the industry, thus reducing the ability of a firm's CSIU to deliver competitive advantage For example, a TelCo manager indicated that CSIU benefits were primarily "defensive" because residential telephone customer preferences were relatively homogeneous and well known

Market dynamism refers to the rate of change in the composition of customers and their preferences (Jaworski and Kohli 1993) When customers and their preferences change slowly over time, all firms may achieve a similar level of customer knowledge, and the CSIU process may add differentially less competitive advantage For example, FilterCo managers indicated that their customers' preferences changed relatively rarely, and this made it difficult to have a know-what advantage over rivals through CSIU However, when customer preferences change rapidly, CSIU processes may be unable to keep pace and, again, may not deliver significant competitive advantage (Flint, Woodruff, and Gardial 2002) For example, NetworkCo's manager of the key account CS program indicated that customers' technology demands change so quickly that it is difficult for the CS program to do anything more than address customer service issues However, when customers and their preferences change but do so at a speed that can be detected and acted on by a firm's CSIU, our fieldwork suggests that the potential performance benefits of firms' CSIU are enhanced

Overall Role of CSIU in the Firm

Although our fieldwork indicates many differences among firms on specific CSIU characteristics, we also observed that the firms in our sample could be categorized into one of four groups with respect to their overall CSIU First, six firms in our sample exhibited limited CSIU These firms were characterized by less formal and more infrequent CS data collections, typically *ad hoc* data collections occurring less than once a year These *ad hoc* data collections often seem to be associated with some precipitating event or problem, such as the development of a new offering or a loss of market share As a result of the relatively infrequent CS data collections, most of the subsequent stages of the CSIU process were necessarily more limited than were those exhibited in the rest of our fieldwork sample

A second group of 17 firms exhibited more extensive CSIU that was primarily connected with the firm's management control system In these firms, CSIU is used along with other monitoring systems, typically those that focus on financial and sales indicators, to track CS as one of several key performance indicators Of the 37 firms in our sample, 29 regularly use CS data to help monitor firm performance In these 17 firms, however, CSIU is viewed as primarily a performance-monitoring issue In this group, our field research indicates that CSIU tends to be characterized by (1) more formalized CS data collection systems that are particularly likely to use CS measures that include specific referents (e g , customer expectations, perceptions of competitors' products), (2) relatively simple univariate analyses of overall CS, (3) a more frequent dissemination of CS data and recipients that view the CSI as having little diagnostic capacity, and (4) a stronger instrumental CSI utilization that is focused on strategy implementation and control, including the greatest use of explicit CS goals and systems that link employee rewards to their achievement

In a third group of five firms, we observed that CSIU primarily provides a mechanism for learning about customers, and the managers in these firms believe that it provides customer knowledge that can be leveraged to provide a strategic advantage (Barabba and Zaltman 1991, Sinkula 1994) In these firms, CSIU appears to be congruent with theoretical conceptualizations of organizational learning (Crossan and Bedrow 2003, Sinkula 1994) Consistent with this literature, the majority of the learning about customers that firms in our field research derive from CSIU appears to be adaptive (Slater and Narver 1995) However, the five firms for which CSIU predominantly fills an organizational learning role also often engage in more open-ended *ad hoc* CS inquiries that are consistent with generative organizational learning (Day 1994b) We observed that CSIU in these firms (1) is more likely to involve both informal and formal CS data collection, (2) is likely to use more sophisticated multivariate analyses that focus on understanding the attribute drivers of overall CS and the relationship between CS and customer loyalty, (3) expends more time and effort uncovering diagnostic and actionable CS insights, and (4) makes greater conceptual use of CSI and uses CSI in formulating strategy

Fourth, we identified a group of nine firms that appeared to use CSIU as both a key component of the firm's management control system and an important customer-focused organizational learning mechanism Notably, each of these nine firms operated in consumer rather than business-to-business markets Compared with the other three groups identified, these firms (1) are the most likely to include lost and strategic customers in their CS data collection samples, (2) are the most likely to integrate CS-related data from different sources in CS data analysis, and (3) have both the greatest dissemination of CS data within the firm and some of the most positive user perceptions of the accuracy, relevance, and diagnosticity of CSI However, there appears to be less generative learning from CSIU in these firms than in those in which CSIU is predominantly a learning mechanism This may be a result of the lower use of supplemental *ad hoc* and informal CS-related data collections to complement formalized CS systems This is consistent with our observation that the firms in this final group tend to have more extensive formal CS data collection systems and make greater use of these formal systems to derive primarily adaptive learning benefits

Overall, this grouping of firms' CSIU in our fieldwork sample suggests that there are tensions between using CSIU for control purposes and for generative organizational learning Comparisons between current and prior CS data are important contributors to both management control system success and adaptive learning within the firm (Moorman 1995, Slater and Narver 1995) These comparisons contribute to a shared mental model of what managers believe is important to customers, and they provide actionable benchmarks against which managers can monitor the firm's performance (Day 1994a, 2000) However, our fieldwork indicates that these same characteristics can also be restrictive (Moorman and Miner 1997) They can make open-ended inquiry that challenges a firm's assumptions about its customers difficult, even if a firm's CS systems identify triggers that suggest the need for such an inquiry For example, several managers in our fieldwork admitted that their firms continue to use CS systems they believe to be outdated—even in terms of measuring performance on attributes that may no longer be relevant to their customers' satisfaction—to continue to provide the same CS data for performance monitoring Managers indicated that in these situations, it can be difficult to instigate research projects to verify whether changes in CS drivers have occurred because of the pressure to maintain consistency with historical CS data for benchmarking purposes

Implications

We summarize a selection of the most important findings from our fieldwork in Table 3 The table presents typical practices we found with respect to the four subprocesses of CSIU, and it classifies each practice along a continuum from encouraging to discouraging

Encouraging practices are those we find to be consistent with normative prescriptions and appropriate given the context in which the firm operates, they include widespread use of formalized data collection, multivariate driver analysis, regular dissemination of findings, and an impact on decision making in customer service and account management functions To a large extent, these are the fundamental components of any successful CSIU system

Normative departures are practices that do not fit with normative theory but may be appropriate given certain situational factors Such practices include the lack of formal in-depth inquiry into underlying causes of satisfaction and dissatisfaction, the use of single-item scales, little integration of CS data with other relevant data within the firm (only one firm in our sample linked CS to purchase behavior and none to financial consequences), failure to inform frontline employees, and CSI not making its way into functional areas other than customer service and account management For example, in many industries, it is difficult to link CS data with purchase behavior or customer profitability Managers whose CSIU systems exhibit such departures should ensure that these are appropriate given the nature of the company and the competitive environment it faces

TABLE 3
Fieldwork Finding Highlights

	Encouraging Practices	Normative Departures	Discouraging Practices
Scanning	•Formalized systems are common •Data collection is usually frequent	•There are few formal inquiries to understand the causes of (dis)satisfaction •Most firms use single-item scales	•Data are usually collected only from existing customers (few sample former customers or competitors) •Few firms distinguish strategic or valuable customers from others
Analysis	•Multivariate analysis is used by nearly half the firms in our sample to examine the drivers of satisfaction	•There is little integration of CS data with other customer data or relevant data from elsewhere in the firm •Only one firm links CS to purchase behavior •None of the firms in our sample attempts to link CS to profitability	•More than half the firms do not conduct driver analyses linking attributes to overall satisfaction •Only two firms routinely link CS to postpurchase intentions
Dissemination	•Most firms disseminate CS data internally at least once a quarter	•Approximately 40% of firms do not routinely disseminate satisfaction data to frontline employees	•Data are often disseminated without identifying root causes or fixes to guide recipients •Many users are skeptical of the CS data they receive
Utilization	•Satisfaction information is an important input into many decisions in the customer service and account management domain	•CSI is not a key input to decisions in many key functional areas in which it would be useful	•Satisfaction data tend to be used in decision making at a tactical rather than a strategic level
Overall	•CSIU systems are widespread •Basic subprocesses are often well executed within specific functional domains	•CSIU implementation often reflects the purpose of the system in a particular firm and key contingency factors	•Using CSIU for control purposes (adaptive learning) can lead to myopia with respect to gaining new insights about customers (generative learning)

Discouraging practices are those that both depart from normative theory and would benefit from correction regardless of the situation The major practices that fall into this category include the following Few firms sample lost customers or customers who work with competitors, many firms do not conduct driver analyses, few firms link CS data to postpurchase intentions, firms often disseminate data without interpretation or guidance to help recipients respond appropriately, recipients often have not "bought in" to the use of CSI, and firms use CS data more often for tactical adjustments than for strategic decision making We believe that corrective action should be taken in such cases, beginning with conducting appropriate driver analysis and disseminating CSI in a way that is immediately useful and diagnostic Finally, we highlight three general implications for theory development and managerial practice that we believe are particularly important

Contingency Factors Should Drive CSIU Implementation

Instead of attempting to emulate a normative CSIU ideal, CSIU implementation should vary across firms to the extent that each firm faces different situational factors Our findings indicate that managers should focus on identifying the key contingencies the firm faces and should design a CSIU system that is appropriate for these specific conditions Investment in further CSIU improvements that move the firm closer to a classical theory-based norm would likely not produce a reasonable return Thus, for example, it may not always make sense for a firm to build competitive superiority in its CSIU In markets with either slow or rapidly changing customer preferences and in firms with a strong orientation toward technological innovation or low costs, investments in building extensive CSIU processes seem unlikely to be the most efficient use of resources

Systematic CSIU Efforts May Become a "Learning Trap"

Many of the firms in our sample do not appear to gain significant customer-focused learning benefits from their CS systems, because they are designed to act primarily as a control mechanism Consistent with conceptualizations of learning traps in organizational learning theory (Levinthal and March 1993), we observed that using CSI primarily for control purposes can actually limit managers' ability to learn about customers Although firms may gain adaptive learning benefits by investing in more extensive CSIU, our study suggests that generative learning about customers also requires less-formalized *ad hoc* research projects This has important implications for the further development of conceptualizations and operationalizations of market orientation and for management practice

Allocate CSIU Resources to Maximize CSIU Effectiveness

For firms that operate in contexts in which CSIU can deliver a competitive advantage, our study indicates that managers may be well served to reevaluate how they deploy their existing CSIU resources The majority of CSIU resources in the firms in our sample are consumed in CS data collection This often leads to too few resources being allocated to the analysis, dissemination, and utilization of this information to realize fully the potential payback from the investment in data collection For example, our fieldwork suggests that investments to improve the sophistication of CS analyses and to make CSI more frequently and widely available to managers have a significant impact on recipient perceptions of its accuracy, usability, and diagnosticity In turn, this may lead to a greater utilization of CSI in decision making and boost the learning outcomes of firms' CSIU, which may benefit firms even if their major CSIU objective is to enhance their management control systems

Conclusion

The ability to acquire and use CSI is central to marketing theory and practice Our fieldwork identifies important characteristics of the scanning, analysis, dissemination, and utilization subprocesses in firms' CSIU We highlight numerous areas in which CSIU practice diverges from normative theory prescriptions and identify a wide variance in CSIU among firms We bring these insights together to propose a new contingency-based model of CSIU and its relationship with firm performance

The proposed model provides new theoretical insights into CSIU and enriches our understanding of CSIU, of how CSIU is influenced by contextual factors, and of the role of CSIU in organizational learning and making marketing metrics work within an organization We believe that the model provides a foundation for further theoretical and empirical work Important next steps might include examining the link between CSIU and financial performance, understanding the relative payoff of investing in different components and subprocesses of CSIU, and learning to balance CSIU initiatives with those aimed at generative learning and developing new customer insights

The model is also useful to managers who want guidance in creating, managing, and improving their CSIU systems In particular, the model highlights the components and processes of CSIU that must be managed successfully for the full benefits of an organization's investment in CSIU to be realized By identifying key contingency factors that influence how CSIU should be implemented in different firms, the framework also provides a roadmap for managers to prioritize their investments in CSIU

In general, we recommend that managers do the following

- •Collect data from current customers, former customers, and competitors' customers,
- •Conduct multivariate analyses that link attribute perceptions to overall satisfaction and intentions and, when possible, to customer behaviors and profitability,
- •Ensure that CSI is viewed by recipients as accurate, usable, and diagnostic,
- •Use CSI as an input for strategic decision making and for day-to-day tactics,
- •Augment CSIU systems with market research geared toward the generative learning of new customer insights,
- •Design CSIU systems that are dependent on contingency factors (i e , desired positional advantage, ability to match CS data to actual purchase behavior, and competitive intensity), and
- •Examine the allocation of CSIU budgets to determine whether sufficient resources are being devoted to the analysis, interpretation, and dissemination of CS data after it is collected

Customer satisfaction is a central concept in marketing and a core strategic objective for any firm Customers are ultimately the primary source of all positive cash flows Therefore, attracting and retaining profitable customers must be one of the firm's most fundamental tasks Thus, the creation and successful management of CSIU systems that enable the firm to achieve a superior understanding of customer needs and respond more effectively and efficiently than competitors are important ways that marketing makes significant contributions to the success of the firm It is our hope that this study furthers the theoretical understanding of such initiatives and enhances their implementation in practice

Appendix
Qualitative Depth Interview Protocol

1. How is CS measured here?

- •Measures complaints, overall CS, CS with different aspects of product and exchange, outcomes or perceptions/expectations, importance weights, attribute drivers versus cues
- •Frequency time frames, systematic or around key events (e g , test marketing new product)
- •Sampling all customers versus subset, current versus previous customers/defectors, customers versus prospects, competitors' customers, end users versus channel
- •Data collection method qualitative versus quantitative, complaints versus CS, written survey versus telephone versus face-to-face, internal versus third party, primary versus secondary
- •Processes formalized versus informal

2. How is CS data analyzed and interpreted?

- •Data analysis tools averages, correlations, multiple regressions, and so forth
- •Relationships examined purchase behavior, market performance, financial performance, employee satisfaction, other internal metrics

3. How is CSI disseminated within the organization?

- •Frequency
- •Channels and media used

- User targets vertical dissemination, horizontal dissemination
- How information is viewed by recipient managers (e g , valid and reliable, useful, timely)

4. How is CSI used in decision making?

- In what types of decisions are CS data a routine input?
- How important is CS data in each of these decisions?
- In what types of decisions are CS data an infrequent input?
- Orientation of decisions? Time scale of decision? Speed of utilization?

5. What resources and capabilities are required for effective CS usage?

- Financial, human, technological, research skills, customer knowledge

6. What aspects of the organizational context seem to help and hinder the effective generation and use of CSI?

- Culture information sharing norms, customer versus competitor orientation, internal versus external orientation
- Structure formalization, specialization, centralization, interdepartmental connectedness
- Strategic CS goals, competitive strategy, reward system link
- Political management commitment, cross-functional buy-in

7. What are the outcomes of CSIU in this company?

- Internal employee satisfaction, team spirit
- Market satisfaction, price sensitivity, loyalty, retention, new product success, sales growth, market share
- Financial margin, return on investment, cash flow

8. What internal and/or external factors may affect the relationship between CSIU and performance outcome?

- Market issues, competitive conditions, customer characteristics

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Technological Evolution and Radical Innovation

Technological change is perhaps the most powerful engine of growth in markets today To harness this source of growth, firms need answers to key questions about the dynamics of technological change (1) How do new technologies evolve? (2) How do rival technologies compete? and (3) How do firms deal with technological evolution? Currently, the literature suggests that a new technology seems to evolve along an S-shaped path, which starts below that of an old technology, intersects it once, and ends above the old technology This belief is based on scattered empirical evidence and some circular definitions Using new definitions and data on 14 technologies from four markets, the authors examine the shape and competitive dynamics of technological evolution The results contradict the prediction of a single S-curve Instead, technological evolution seems to follow a step function, with sharp improvements in performance following long periods of no improvement Moreover, paths of rival technologies may cross more than once or not at all

Understanding technological innovation is vital for marketers for several reasons Technological change is perhaps the most powerful engine of growth It fuels the growth of new brands (e g , Gillette's Mach 3), creates new growth markets (e g , digital video recorders), and transforms small outsiders (e g , Intel) into market leaders (Chandy and Tellis 1998, Christensen 1997, Foster 1986) To date, the topic of technological evolution has been studied primarily in the technology management literature A central premise is that performance of a new technology starts below that of an existing technology, crosses the performance of the older technology once, and ends at a higher plateau, thus tracing a single S-shaped curve (see Figure 1) There is scattered empirical support for the premise and limited theoretical support for various aspects of the S-shape curve (e g , Foster 1986, Utterback 1994a)

Belief in this premise is so strong that it has become almost a law in the strategy literature, from which authors have derived strong managerial implications For example, they have warned that even though managers might be able to squeeze out improvement in performance from a mature technology at the top of its S curve, improvement is typically costly, short lived, and small Thus, a primary recommendation in the strategy literature and the trade press is that managers should abandon a maturing technology and embrace a new one to stay competitive (e g , Christensen 1997, Foster 1986) A central, practical problem that managers face is when to shift investments from the current to the future technology If the S curve is indeed valid, the appropriate time would be the inflection point of the S curve After this point, performance improves at a decreasing rate until maturity

New product development and major investments in research depend on a correct understanding of technological evolution in general and of the S-shaped curve in particular To foster this understanding, this study addresses the following questions

- How do new technologies evolve? Do they follow the S-shaped curve or some other pattern? Are technological changes predictable? Is the rate of technological change increasing?
- How do rival technologies compete? What are the performance dimensions of competition? What are the transitions between technological changes?
- Which firms carry out and survive technological evolution? Who introduces radical innovations? Do incumbents survive the change?

The primary focus of the current study is empirical We test hypotheses derived from prevailing literature and examine the evolution of 14 technologies in four markets or industries In the next three sections, we present the hypotheses, method, and results In the final section, we discuss the findings, limitations, and implications of the research

Hypotheses Development

The field does not enjoy a single, strong, and unified theory of technological evolution To guide our empirical work, we reviewed available theory from the literature and derived testable hypotheses about the path, shape, source, and speed of technological evolution and the competition among rival technologies Findings in this area have been partly confounded by the use of circular definitions Thus, we begin

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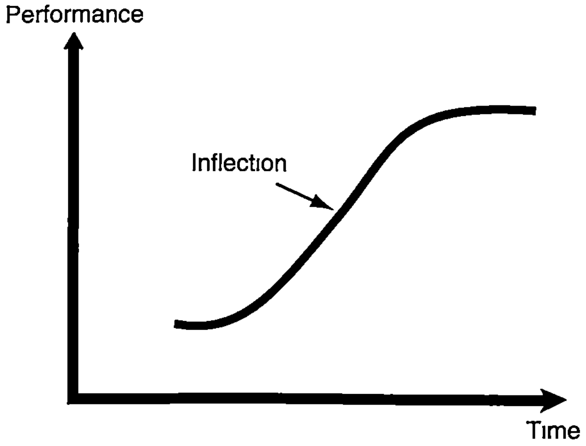
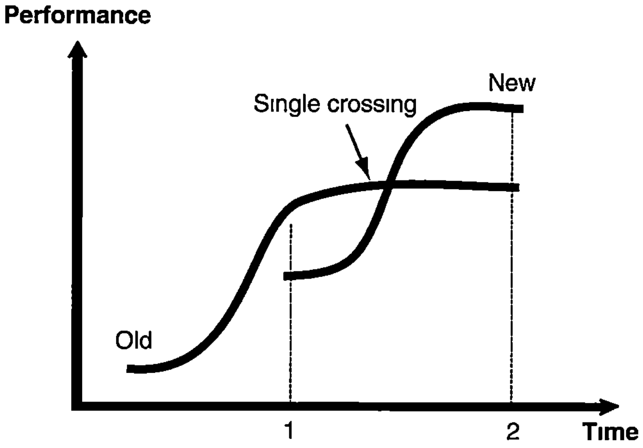
FIGURE 1
Technological Evolution

A: Technological S Curve



B: Multiple S Curves



by defining types of technological innovations independent of their effects

Definitions

Beginning with Schumpeter's (1939) early study, researchers have used a wide variety of terms to describe innovations Many terms, such as "revolutionary," "disruptive," "discontinuous," or "breakthrough" (Freeman 1974, Garcia and Calantone 2002, Tushman and Anderson 1986), are intrinsically problematic because they define an innovation in terms of its effects rather than its attributes If the definitions are then used to predict market outcomes (e g , new entrants that displace incumbents with disruptive technologies), researchers risk asserting premises that are true by definition To avoid such circularity, we define technological change in terms of intrinsic characteristics of the technology As such, we identify and define three types of technological change platform, component, and design

We define a "platform innovation" as the emergence of a new technology based on scientific principles that are distinctly different from those of existing technologies For example, the compact disk (CD) used a new platform, laser optics, to write and read data when the prior technology used magnetism We define a "component innovation" as one that uses new parts or materials within the same technological platform For example, magnetic tape, floppy disk, and zip disk differ by use of components or materials, though all are based on the platform of magnetic recording We define a "design innovation" as a reconfiguration of the linkages and layout of components within the same technological platform For example, floppy disks decreased from 14 to 8 inches in 1978, to 5 25 inches in 1980, to 3 5 inches in 1985, and to 2 5 inches in 1989, though each was based on magnetic recording (Christensen 1993)

These definitions are refinements of the technological dimension of radical innovations that Chandy and Tellis (2000) define In our study, we use the term technology synonymously with platform Furthermore, we note that improved performance in platform innovation results from innovations in component or design In the interests of parsimony, this study does not explicitly identify the component and design innovations that improve performance in new platforms

Logic of the S Curve

In the technology literature, a consensus has developed about the shape of technological evolution, and a consensus is emerging about the major explanation for this phenomenon Regarding the phenomenon, prior research suggests that technologies evolve through an initial period of slow growth, followed by one of fast growth, and culminate in a plateau When plotted against time, the performance resembles an S curve (see Figure 1, Panel A) Support for this phenomenon comes primarily from the work of Foster (1986), Sahal (1981), and Utterback (1994a) These authors address the progress of a technology on some primary dimension that is critical to consumers when the innovation emerges Some examples of this are resolution in monitors and printers and recording density in desktop memory products Subsequent authors have either accepted this view or found additional support for it We did not find any article that has questioned it

Authors have not developed any single, strong, and unified theory for the S curve However, an emerging, and probably the most compelling, explanation revolves around the dynamics of firms and researchers as the technology evolves We call this explanation the technology life cycle because it explains the occurrences of three major stages of the S curve introduction, growth, and maturity (see Abernathy and Utterback 1978, Utterback 1994a) We describe these stages as emerging from the interplay of firms and researchers over the life of the technology

Introduction stage A new technological platform makes slow progress in performance during the early phase of its product life cycle Two reasons may account for this First, the technology is not well known and may not attract the attention of researchers Second, certain basic but important bottlenecks must be overcome before any new technological platform can be translated into practical and meaningful improvements in product performance For example, the laser beam was a new platform that required much time and effort to achieve the safety and miniaturization required to use it as a surgical tool

Growth stage With continued research, the technological platform crosses a threshold after which it makes rapid progress This stage usually begins with the emergence of a dominant standard around which product characteristics and consumer preferences coalesce (Utterback 1974) That consensus stimulates research on the new platform, which in turn leads to improvement in its performance Furthermore, publicity of the standardization draws a large number of researchers to study the new platform Their cumulative and interactive efforts also lead to rapid increases in performance The rapid progress leads to increases in sales of products based on the new technology, which increases revenues and profits and offers further support for research In turn, these added resources fuel further improvement in performance (Klepper 1996)

Maturity stage After a period of rapid improvement in performance, the new technology reaches a period of maturity after which progress occurs slowly or reaches a ceiling (see Brown 1992, Chandy and Tellis 2000, Foster 1986, Utterback 1994b) Authors propose several reasons for this change Foster (1986) suggests that maturation is an innate feature of each platform, a technology is good for only so much improvement in performance Utterback (1994b) and Adner and Levinthal (2002) suggest that as a market ages, the focus of innovation shifts from product to process innovation As such, performance increases are few and modest, leading to technological maturity Reinganum (1985) and Ghemawat (1991) suggest that maturity occurs when there is less incentive for incumbent firms to innovate because of fears of obsolescence or cannibalization from a rival platform Thus, the rate of innovation reduces relative to the growth stage Perhaps the best explanation is that of Sahal (1981) He proposes that the rate of improvement in performance of a given technology declines because of limits of scale (i e , things become either impossibly large or small) or system complexity (i e , things become too complex to work flawlessly) When these limits are reached, the only possible way to maintain the pace of progress is through radical system redefinition—that is, a move to a new technological platform

Hypotheses

On the basis of the preceding explanation, we derive hypotheses about six aspects of technological evolution shape, path, and dynamics of technological change on a primary dimension, progress on secondary dimensions, and the source of innovations and pace of technological transition

Shape of Technological Progress

Although the extant literature suggests that technological evolution follows an S curve, it does not indicate the slope of this S curve, the duration of the stages, or the timing or steepness of the turning points We try to determine whether it is possible to identify any patterns or generalizations about these parameters However, in terms of a testable hypothesis regarding shape, the most precise hypothesis we can formulate is as follows

> H_1 Technological progress on a primary dimension follows a single S-shaped growth curve

Technological Transition and Performance of Competing Technologies

Do the paths of two technologies ever cross? If so, how many times? A crossing signals whether a new technology is robust and productive enough to supplant the old one The existing literature suggests that such paths cross once This conclusion is based on three implicit premises First, performance of successive technologies each follows an S curve Second, the performance of the new technology starts below that of the old technology Third, performance of the new technology ends above that of the old technology

Support for the first premise follows from that for H_1 Support for the second premise is widespread Utterback (1994a, p 158) asserts that "[a]t the time an invading technology first appears, the established technology generally offers better performance or cost than does the challenger, which is still unperfected" Foster (1986) claims that the performance of competing new technologies is much less than that of established technology during the fast growth phase of the established technology Adner and Levinthal (2002, p 56) claim, "It is unlikely that a new technology will initially dominate an established technology in its primary domain of application" Christensen (1992a, b) and Anderson and Tushman (1990, 1991) support the general phenomenon that when it first appears, any new technology provides much lower benefits than the old technology Several authors provide arguments and examples in support of the third premise Utterback (1994a, p 160) states that "the new technology often has so much more potential for better performance that it" ultimately "surpasses the old" Two common examples cited in support of these arguments are steamships replacing wind-powered ships (Foster 1986) and airplanes' turbo jet engines replacing internal combustion engines (Constant 1980)

On the basis of the preceding premises, Foster (1986) and Christensen (1997, p 398) postulate the following chain of events in the evolution of competing technologies Sometime in the life of an old technology, a new technology emerges Initially, it makes slow progress on the primary dimension However, at some point, it enters its growth phase and improves rapidly In contrast, the old technology improves at a much slower rate even though major commitments are made to develop products using old technology As a result, a point is reached when the new technology crosses the old technology in performance (see Figure 1, Panel B) This crossing of the old technology is a signal of the end of its efficient progress Thus, the threat to the old technology on the primary dimension is always from below

This pattern of intertechnology competition results in overlapping S curves, with each new S curve starting below but ending above the old For example, some empirical studies indeed show a single crossing between any two technologies (Christensen 1997, Foster 1986) This line of argument is represented in the following hypotheses

H_2 When a new technology is introduced, its performance is lower than that of the old technology

H_3 When a new technology reaches maturity, its performance is higher than that of the old technology

H_4 The performance path of a pair of successive technologies intersects once when the new technology surpasses the old technology in performance

Pace of Technological Transition

Pace of technological change refers to the rate at which innovations are introduced in the market The pace may be essentially stochastic because of the uncertainties in both the frequency of improvements and the magnitude of gain realized through each innovation However, some authors believe that innovations are occurring more rapidly for three reasons First, every year, greater resources are devoted to research and development (R&D) Second, every year, an increasing number of countries and people become involved in this R&D Third, progress in one area (e g , computers) enables greater efficiencies in another area (e g , materials design)

At least two studies have found empirical support for this thesis For example, Qualls, Olshavsky, and Michaels (1981) find that the percentage of products in the introductory and growth phases of the product life cycle increased over the past 50 years In addition, research in diffusion of new technologies (Danaher, Hardie, and Putsis 2001, Pae and Lehmann 2003) also suggests a reduction in intergenerational time over time in many markets Thus

H_5 The time interval between successive introductions of a new technology (i e , a new platform) decreases over time

Similarly, Golder and Tellis (1997, 2004) and Tellis, Stremersch, and Yin (2003) find that the time for takeoff of new products is shorter now than in previous decades This finding implies that the rate of innovation within technologies is higher now than in previous decades, and new technologies improve at a quicker rate Kayal (1999) finds that in the past 25 years, there had been increasing recency in the median age of the patents cited on the front page of a patent document This finding suggests that the cited patents are relatively recent and that the technology is experiencing a frequent replacement of one generation of inventions with another, which is a sign of a rapidly progressing technology Fernald and Ramnath (2004) find the greatest increase in total factor productivity in industries that use emerging information technologies Total factor productivity is defined as the growth of real output beyond that which is attributable to increases in the quantities of labor and capital that are used Economists often use this measure to represent the improvements in productivity that result from technological change (Hulten 2000) The increase in the pace of technological change could result from the larger size of successive jumps in performance, more frequent jumps, or both Thus, we propose the following two hypotheses

H_6 The time interval between successive improvements in performance of a given technology decreases over time

H_7 The percentage increase in performance, calculated relative to the previous year, increases over time

Conversely, Bayus (1994, 1998) believes that even though more products and product variations are available in the market at any point, the current rate of change is no higher than in previous decades

Source of New Technologies

Which types of firms are more likely to introduce platform innovations incumbents or new entrants, large firms or small firms? This topic has been the subject of research for decades The conventional wisdom is that platform innovations come primarily from small firms or new entrants These firms are ridiculed and ignored by incumbents in the beginning, but subsequently, they become successful with the progress of the new technology Scherer (1984) shows how new entrants contribute to a "disproportionately high share" of revolutionary industrial products Previous studies proposed many reasons for large incumbents' failing to introduce innovations, including incumbents' technological inertia (Ghemawat 1991), complacency (Robertson, Eliashberg, and Rymon 1995), arrogance (Lieberman and Montgomery 1988), and unwillingness to cannibalize their current products (Chandy and Tellis 1998) Thus, the dominant view in the literature is as follows

H_8 Platform innovations are introduced primarily by small entrants

Method

A ready-made database does not exist for the study of technological evolution We collected our own data using the historical method, following a growing trend in marketing (see Chandy and Tellis 2000, Golder 2000, Golder and Tellis 1993) The benefits of using the historical method include lower survival and self-report bias, ability to assess causality through longitudinal analysis, and new insights from a fresh reading of history (Golder 2000, Tellis and Golder 1996) Next, we detail our sample selection, sources, and procedure for data collection

Sample Selection

We used two criteria to select categories some overlap with prior research and an adequate number of platform innovations We selected a portfolio of categories such that it included some that had been investigated in prior studies (e g , memory) and others that had not been researched (e g , data transfer) This coverage enables us to compare our results with prior studies and to validate these findings in new categories However, the current study goes further than previous studies in one important aspect Within each category, we selected all technologies We also required that the category have had at least two platform innovations On the basis of these criteria, we chose data transfer, computer memory, desktop printers, and display monitors. Note that the first is utilities, and the next three are consumer electronics. Thus, the sample crosses a broad spectrum of products.

Sources

The information required for this study is technical data on product performance for various technologies at different stages of their evolution. The primary sources of our data were reports in technical journals, industry publications, white papers published by R&D organizations, and annual reports of industry associations. We sourced industry reports of market research firms (e.g., Disk/Trend, Stanford Resources), press releases, timelines of major firms, and records in museums that profiled innovations and the development of industries. We recorded the current performance of many technologies from product information bulletins released by firms.

Procedure

We followed the general rules for data collection for the historical method (Golder 2000). We explain specific problems we encountered and the rules we used to resolve them. First, within a technology, as the performance of that platform, we used the performance of the best component or design or the combination of the two. Second, if two sources provided conflicting data for a period within the series, we chose the one whose starting and ending values were more consistent with the rest of the series. Third, we used the date of first commercialization of a product based on each technology as the standard starting point to compare the relative performance of any two technologies.

Results

First, we present the identification of platform innovations and the performance attributes in each category. Second, we present findings on the hypotheses regarding the shape, path, and dynamics of technological changes. Third, we present findings on the competition, rate of improvement, and source of new technologies. We used nonlinear regression to test the first and primary hypothesis, the existence of the S curve. We used cross tabulations, chi-square and binomial tests, and regression analysis for the other hypotheses.

Identification of Platform Innovations and Performance Attributes

We identified various technologies in each of the markets, each of which was initiated by a platform innovation: four in desktop printing and display monitors and three in desktop memory and data transfer. We describe these 14 technologies briefly in the Appendix. (Detailed definitions for these innovations are available on request.)

We found that some of the platform technologies may not be readily distinguishable to the customers for one major reason. Even when a new technology differs radically from an old one, firms try to facilitate consumer adoption by maintaining a uniform interface for the new product based on the new technology. For example, many secondary storage devices based on magnetic and magneto-optical principles used almost identical housings and interface accessories. We considered the underlying technologies distinct if they were based on fundamentally different scientific principles. We adopted this rule to avoid the confusion of differences in technologies based on their characteristics with superficial differences based on derived products.

The literature is quite consistent in recommending the use of performance as the key dependent variable when testing the S curves (e.g., Christensen 1999, p. 19; Foster 1986, p. 274; Utterback 1994a, p. 158). In each category, at a particular stage of technological evolution and consumer needs, certain dimensions of performance assume primacy. We did not have difficulty identifying these dimensions based on the historical description of the technologies. Fortunately, each of the dimensions has fairly clear performance metrics. In choosing metrics, we were careful to take into account output per unit of input (see Table 1).

Shape of Technological Evolution

In H_1, we predict that technologies evolve through S curves. We plotted the performance of technologies on the y-axis against time on the x-axis (see Figure 2, Panels A–E). We excluded organic light emitting device (OLED) technology from the formal tests of shape because it has only two data points. As we hypothesized, these figures reveal that technologies have a slow start and a sudden growth spurt. However, we found a single S-shaped path with a single inflection point followed by a permanent plateau or maturity in only four technologies. In nine technologies, we did not find a single S curve. Rather, we found long periods of static performance interspersed with abrupt jumps in performance. The plots suggest a series of step functions, each of which could approximate an S curve. To test H_1 that evolution follows an S-shaped function, we performed the following two tests.

First, we fit the generalized logistic function to the four technologies that reveal a single S-shaped curve:

$$Y_t = d + \frac{a}{1 + e^{-b(t - c)}}, \tag{1}$$

where Y_t = performance of the technology in year t, and a, b, c, and d are parameters to be estimated. b is the growth rate, c is the time of maximum growth or the inflection

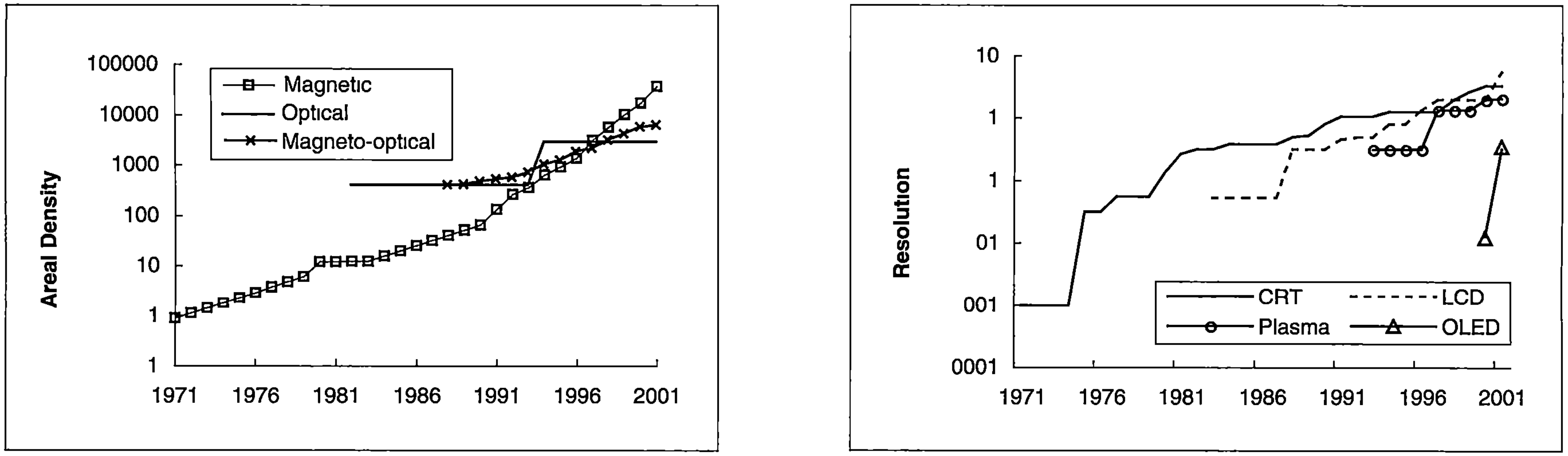
TABLE 1
Metrics of Primary Dimensions in Each Category

Category	Primary Dimension	Metric
Desktop memory	Storage capacity	Bytes per square inch
Display monitors	Screen resolution	Dots per square inch
Desktop printers	Print resolution	Pixels per square inch
Data transfer	Speed of data transmission	Megabits per second

FIGURE 2
Technological Evolution in Four Categories

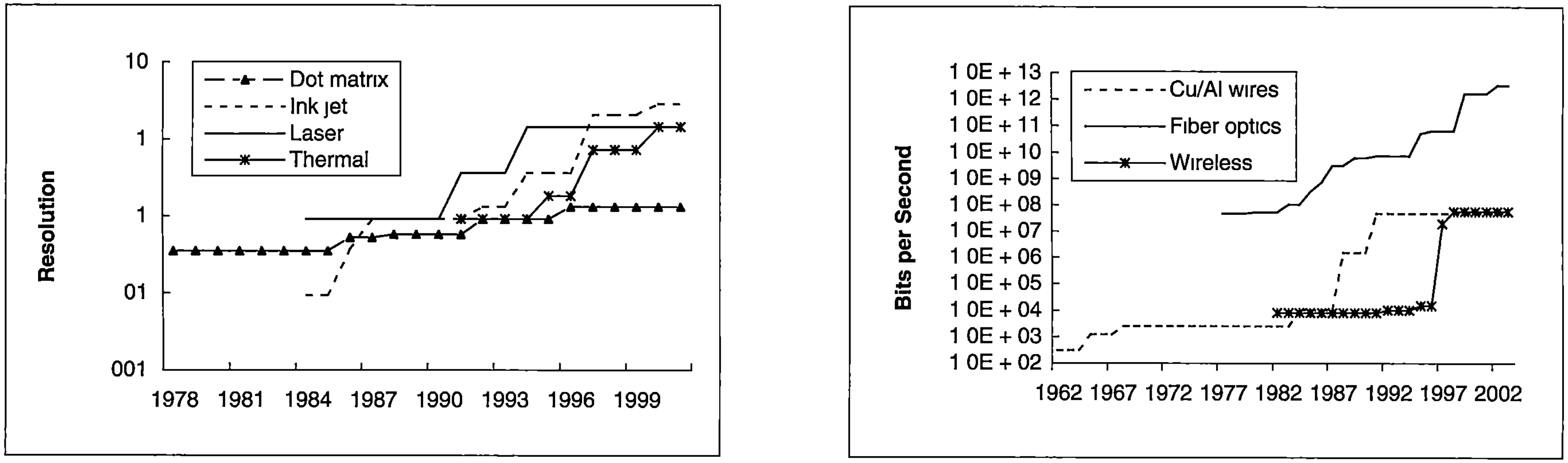
A: Desktop Memory[a]

B: Display Monitors[a]



C: Desktop Printers[a]

D: Data Transfer[a]



[a] Performance on y-axis is in log scale

point, and a + d is the upper asymptote of the S curve We used the nonlinear regression techniques in SAS to estimate the model over the entire data Second, for the nine technologies that seemed to exhibit multiple S curves, we fit the generalized logistic function both to the entire series of data and to a subsample of data that exhibited an S curve We used two criteria to select a subset of data for this purpose (1) Performance of the technology during the subsample had an upper plateau that was longer in duration than was the duration of the just-preceding growth phase, and (2) the subsequent jump in performance in the one year immediately after the plateau was almost double the performance during the entire plateau Our practical goal is to test how well an S curve fits on the whole sample and whether it fits better on a subsample than on the whole data

We found that for the four technologies with an apparent single S-shaped curve, the generalized logistic function provides a good fit with the data (see Table 2, Panel A, and Figure 3, Panels A and B) For the remaining nine technologies, an S-shaped curve fits better over a subsample of data than over the whole data, even after we take into account degrees of freedom (see Table 2, Panel B, and Figure 3,

TABLE 2
Test of Shape of Technological Evolution

A. Fit of Logistic Model to Technologies with Single S Curves

Technology	Parameter Estimates Upper Asymptote (t-Value)	Growth Rate (t-Value)
1 Magnetic memory	4 28 (8 5)	50 (24 8)
2 Optical memory	1 20 (7 4E + 06)	30 95 (24 2)
3 Magneto-optical memory	3 51 (5 2)	51 (7 8)
4 Wireless data transfer	1 57 (234)	6 29 (5 3)

B Differences of Logistic Model Fit Between Subsample and Full Data (for Technologies with Multiple S Curves)

	Improvement in Fit of Subsample over Full Data (Measured as a Reduction in the Mean Square Error)[a]			
	Full Data		Subsample	
Technology	Number of Years	Mean Square Error	Number of Years	Percentage Reduction
1 Dot matrix printers	24	04	14	95%
2 Inkjet printers	18	05	13	97
3 Laser printers	17	02	10	100
4 Thermal printers	11	09	9	95
5 CRT monitors	31	09	27	97
6 LCD monitors	19	20	18	93
7 Plasma monitors	19	14	7	100
8 Copper/Al cables	42	57	21	95
9 Fiber optics	27	06	25	99
Mean	23 1	—	16	97

C: Differences of Logistic Parameters Between Subsample and Full Data (for Technologies with Multiple S Curves)

Technology	Difference in Parameter Estimates for Upper Asymptote (a + d) Difference (t-Value)	Growth Rate (b)· Difference (t-Value)
1 Dot matrix printers	2 2 (68)	−4 9 (−42)
2 Inkjet printers	2 6 (79)	1 8 (−9)
3 Laser printers	1 6 (63)	−20 8 (−80)
4 Thermal printers	2 5 (14)	−7 2 (−14)
5 CRT monitors	97 3 (44)	− 2 (−11)
6 LCD monitors	89 6 (21)	− 4 (−11)
7 Plasma monitors	1 1 (10)	−28 6 (−222)
8 Copper/Al cables	17 7 (425)	6 (14)
9 Fiber optics	−1 6E + 12 (−3 0E + 08)	−12 6 (−19)

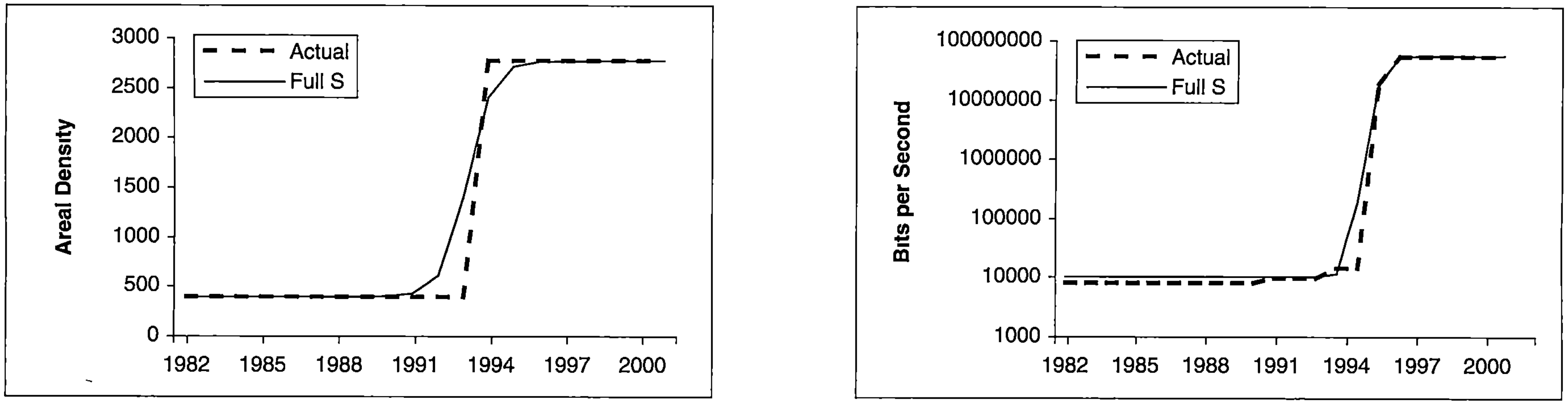
[a]We excluded OLED displays from the analysis

FIGURE 3
Fit of Logistic Model over Multiple and Single S Curves

Technologies with Single S Curve

A: Optical Memory

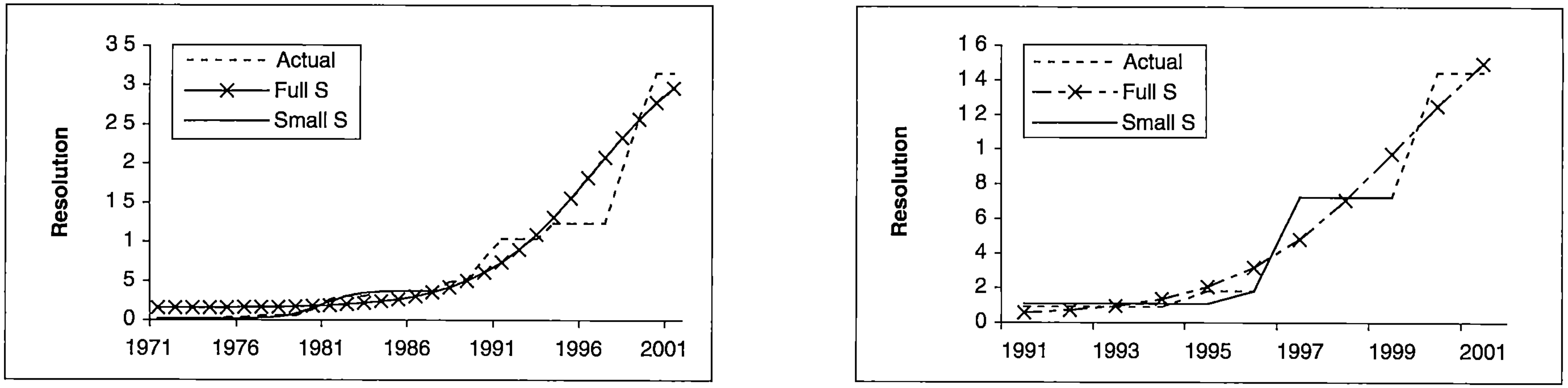
B: Wireless Data Transfer[a]



Technologies with Multiple S Curves

C CRT Monitors

D: Thermal Printers



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[a]Performance on y-axis is in log scale

Panels C and D) Table 2, Panel B, shows that the fit over the subsample gives an average reduction of 97% in the mean square error compared with the fit over the whole sample Furthermore, Table 2, Panel C, shows that after adjusting for degrees of freedom, the parameter estimates of the fitted generalized logistic function for the subsample are significantly different from the parameter estimates over the whole sample For this test, we used the t-test for differences in parameters with unequal variances over the two models More important, the upper asymptote in the subsample is significantly and substantially different from that in the whole series, leading us to reject H_1

To summarize, the hypothesis of a single S-shaped growth in performance is supported for only 4 of the 13 technologies [1] For 1 technology, we did not have enough data, and for the remaining 9 technologies, change in performance follows a series of irregular step functions that are better approximated with multiple S curves than with a single S curve Across these step functions within a technology, estimates of growth rate and especially performance at maturity (the upper asymptote) differ substantially Using functional analysis, James and Sood (2005) obtain similar results and confirm significant departures from an S curve for these technologies The importance of this finding is that an analyst expecting a single S curve may prematurely abandon a promising technology at the first plateau in performance

Performance of Competing Technologies

In H_2, H_3, and H_4, we predict three characteristics of technological competition performance of a new technology at its introduction and at its maturity (Points 1 and 2 in Figure 1, Panel B) and a single crossing when the new technology crosses the old technology in performance Our results are contrary to the hypotheses (see Table 3, Panel A) A majority of new technologies performed better than the old technology from the time they were introduced In addition, many new technologies never improved over the old technology, whereas others enjoyed brief spells of dominance over the old technology before the old technology regained dominance

This unexpected pattern of evolution results in three distinct types of crossings between any pair of successive technologies (see Table 3, Panel B) First, three of the ten technology pairs showed no crossing at all In these cases, new technologies either started higher than the old technology and remained higher or started lower than the old technology and never crossed the old technology long after their introduction Second, many technologies (three of the ten) showed multiple crossings In such cases, the new technology passed an older technology but was not able to sustain its advantage Third, the expectation of a single crossing, of new passing the old from below, was satisfied in only four of the ten technologies, thus rejecting H_4

In summary, we find no support for any of the three hypotheses on performance of competing technologies Thus, the final status of each technology cannot be deter-

TABLE 3
Dynamics of Technological Competition

A: Performance of New Technology Compared with Old Technology

Technology Category	H_2: Proportion of New Technologies with Low Performance Compared with Old Technologies at Introduction	H_3: Proportion of New Technologies with High Performance Compared with Old Technologies at Maturity
1 Desktop memory	0/2	1/2
2 Display monitors	3/3	1/3
3 Desktop printers	2/3	1/3
4 Data transfer	1/2	1/2
Total	6/10	4/10

B: Number of Crossings Between New and Old Technologies

Technology	Single Crossing	Multiple Crossing	No Crossing
1 Desktop memory	1	1 (3)[a]	0
2 Display monitors	1	1 (3)[a]	1
3 Desktop printers	2	1 (2)[a]	0
4 Data transfer	0	0	2
Total	4/10	3/10	3/10

[a] Figures in parentheses indicate the total number of crossings in the technology pair with multiple crossings

Notes Panel A presents the results of a binomial test to determine the probability that technology performs in accordance with H_2 and H_3, and Panel B presents the results of a binomial test to determine the probability that all crossings are single, and for both, $p < 001$

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[1] We also analyzed these and two other categories analgesics and lighting (Sood and Tellis 2005) Because of reviewers' concerns about the category definitions and the substitutability of technologies, we do not include these analyses in the article

mined solely from the direction of the attack or timing of introduction As such, it would be unwise for an incumbent to scan for competition only among technologies performing worse than its current technology and to make decisions on that basis

Pace of Technological Transition

Three hypotheses (i e , H_5, H_6, and H_7) suggest that the pace of technological transition increases over time (the null hypothesis is that the pace of change is constant over time) Tests of all three measures support an increasing pace of technological change (see Figure 4, Panels A–C) The negative slopes of trends for both the measures of duration suggest declining duration between introductions of successive new technologies and declining duration between successive improvements in each technology The positive slope of trend for the rate of improvement over the past year suggests an increase in the pace of technological change

To test these three hypotheses, we pooled the categories and estimated the following regression equation for each of the three measures

$$Y_{mt} = \alpha + \beta_m \log(t) + \varepsilon_t \quad m = 1-3 \quad , \tag{2}$$

where Y_{mt} represents each one of the preceding three measures of pace of technological change in year t, a and b are coefficients to be estimated, m is the measure of technological change, and e_t are the errors assumed to be i i d normal The coefficients are significantly different from zero for all three measures (see Table 4) Thus, we reject the null hypothesis for H_5, H_6, and H_7 that pace of technological evolution is constant over time Note that our test is in the same spirit as meta-analyses, which pool estimates across multiple categories (Assmus, Farley, and Lehmann 1984, Tellis 1988) Such pooling increases the power of the test and reduces the probability of a Type II error

Source of New Technologies

The dominant view in the literature is that new technologies come primarily from small entrants To shed more light on this issue, we operationalized incumbency and size An incumbent is a firm that was in the category before the introduction of the new platform technology All other firms are entrants For technologies introduced before 1950, we determined the size of a firm on the basis of the total assets (million of dollars) from the COMPUSTAT database Because of limitations of data, for technologies introduced before 1950, we determined a firm's size on the basis of market share or the range of products across industries

In contrast to the dominant view in the literature (H_8), we find only 1 platform innovation introduced by small entrants All the remaining 13 platform innovations came from large firms (7 incumbents and 6 new entrants) Although our results run counter to the dominant view in the literature, they are consistent with two recent findings in the literature (Chandy and Tellis 2000, Sorescu, Chandy, and Prabhu 2003) A possible reason is that in recent decades, innovation has become far more complex The deeper pockets of large firms enable incumbents to maintain state-of-the-art facilities to conduct research, and incumbency provides them with opportunity and resources for developing and introducing platform innovations This reason is further supported by the results Of the 13 innovations introduced by incumbents, none was introduced by small incumbents

Dimensions of Technological Competition

Prior research suggests that certain secondary dimensions become important as technology evolves Progress occurs systematically along the first dimension and then moves to the second, then to the third, and so on These dimensions form the bases of intertechnological competition They also form the bases by which consumers choose among rival technologies or products

The literature also suggests that the basis for such competition is standard and occurs in the same form across markets For example, Christensen (1999) notes four generic dimensions of intertechnological competition functionality, reliability, convenience, and cost Product functionality is the primary attribute on which consumers choose products in that category Similarly, Moore (1991) suggests that products begin to compete on consistent performance, or higher reliability, after subsequent innovations increase functionality beyond a certain point Christensen suggests that after product functionality and reliability requirements are satisfied, firms become more willing to customize product designs to meet customers' specific requirements, such as convenience Abernathy and Clark (1985) propose that the product becomes a commodity, and progress occurs through price reductions after the technology has progressed up the S curve sufficiently on functionality, reliability, and convenience The occurrence of such generic dimensions can be important in guiding firms on the path of evolution and in the direction of the next competitive attack

However, in contrast to expectations about the dimensions of technological competition, our results suggest a sequence of random, unpredictable secondary dimensions in each of the four categories (see Table 5) Each platform technology offered a completely new secondary dimension of competition while competing on the primary dimension For example, consider four successive technologies in monitors CRT, LCD, plasma, and OLED The CRT monitor was initially introduced on the basis of resolution Each subsequent technology was inferior in resolution at the time of introduction but introduced a new important secondary dimension resolution, compactness, screen size, and efficacy

Discussion

Summary of Findings

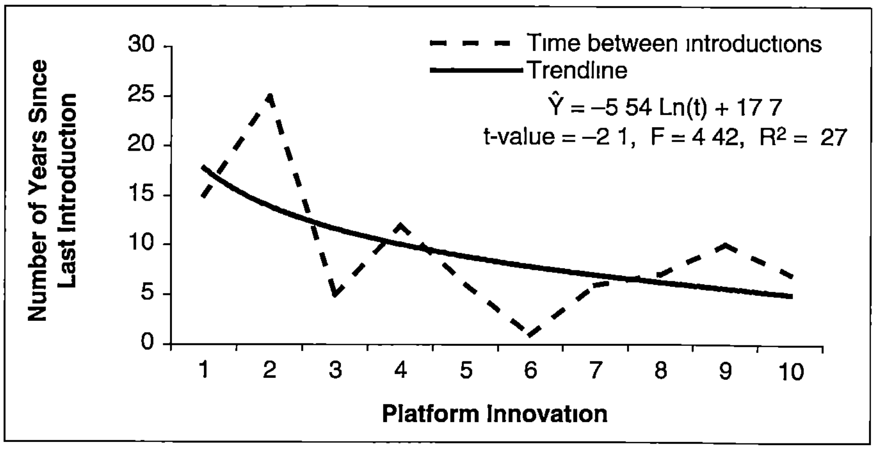
The current research leads to six major findings

1 Technologies do not show evidence of a single S-shaped curve of performance improvement Rather, they evolve through an irregular step function with long periods of no growth in performance interspersed with performance jumps A jump in performance appears to be largest after a long plateau of no improvement

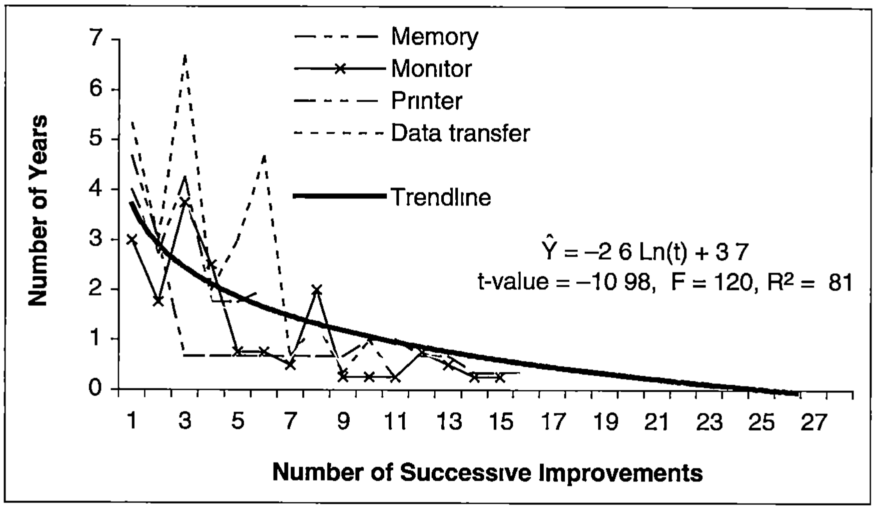
2 New technologies may enter above or below the performance of existing technologies The performance curves of

FIGURE 4
Pace of Technological Transition

A: Declining Time Between Introduction of New Platform Innovations



B: Declining Duration Between Successive Improvements in Technology



C. Increasing Average Percentage Improvement Over the Past Year

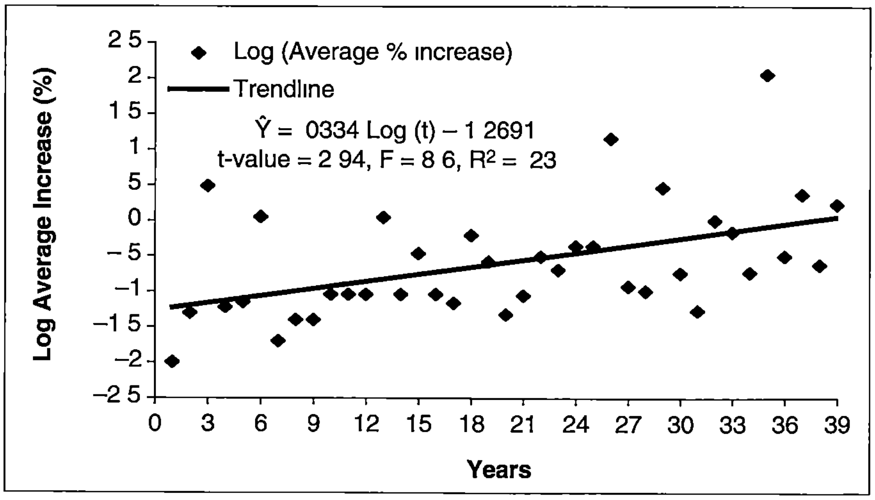


TABLE 4
Regression Results for Different Measures of the Pace of Technological Change

Measure of Dependent Variable: Technological Change	Effect of Independent Variable: Time β	t-Value	R2
1 Time interval between introductions of successive technologies	–5 54	–2 1	27
2 Time interval between successive improvements in performance within a technology	–2 64	–10 9	81
3 Percentage increase in performance relative to the previous year	03	2 9	23

TABLE 5
Emergence of Secondary Dimensions of Competition

Market	Secondary Dimensions
1 Desktop memory	Areal density, reliability, and cost
2 Display monitors	Resolution, compactness, screen size, and efficacy
3 Desktop printers	Resolution, graphics, speed, and continuous color rendition
4 Data transfer	Transfer speed, bandwidth, and connectivity/mobility

a pair of competing technologies rarely have a single crossing

3 The path of technological evolution seems partially predictable Previous improvement in performance of the same technology, improvement or crossing by a rival technology, and especially crossing by a rival firm tend to signal immediate improvement in performance
4 The rate of technological change and the number of new technologies increase over time
5 New technologies come as much from new entrants as from large incumbents
6 Each new technology introduces a sequence of random, seemingly unpredictable secondary dimensions as a new basis of competition

Robustness of Results

To test the robustness of the results, we performed several analyses that covered reference technology, gestation time, censoring bias, survival bias, criterion variables, and multiattribute performance

Reference technology Our results are based on comparing one technology with another technology introduced just before it To address the question whether these results are in any way sensitive to the reference point of the comparison technology, we redid our analyses using the first technology and the dominant technology in the category The results were not materially different from those that we report herein

Gestation time We also examined the gestation time of each technology, which is defined as the time it takes for a firm to convert a patent to a commercial product The average gestation time for technologies is 14 5 years for display monitors, 14 3 years for desktop printers, 9 7 years for desktop memory, and 22 7 years for data transfer technologies The overall average for all categories is 15 1 years Given this long gestation period, our results show that investors must be patient and managers must persevere to bring a new technology to fruition

We examined whether the gestation period shrinks over time given the increasing pace of technological change To examine this hypothesis, we did a median split of the gestation period by the year 1970 Each group had technologies from all four categories Pre-1970 technologies have a significantly larger (t = 2 5) gestation time (25 years) than do post-1970 technologies (7 8 years) This result further supports H_5, H_6, and H_7 regarding the pace of technological change

Censoring bias To check whether our results were at the cost of a censoring bias from not allowing enough time for the new technology to improve, we compared the time taken for the technologies that failed to cross old technologies with those that did cross The average number of years for new technologies to reach the point of first crossing the old technology is 6 3 years In contrast, categories in which the new technology never crossed the old have been in existence for 14 6 years Thus, the lack of a crossing cannot be due to a censored time frame

Survival bias It is impossible to rule out survival bias, though we took great pains to minimize its role First, we tried to include every technology that was commercialized in the markets that we covered for the time period that we studied Second, to examine the possible effect of inadvertently excluding any technologies from the analyses, we defined a class of technological failures nonstarters Nonstarters are those that were used in related fields and could have been used in the target markets with some modification but were either never used or failed to show sufficient improvements in performance, cost, and features soon after initial introduction (e g , chain printers in desktop printers, wire recorders in desktop memory) In other words, these are potential technologies that were never mass commercialized The key issue is whether the exclusion of failures biased our results, just as survival bias upwardly biases the alleged advantages of market pioneers (Golder and Tellis 1993)

We believe that nonstarters do not affect any of our results for three reasons First, our definition of nonstarters is stringent, they are technologies that were never commercialized Second, most of our analysis tracks the progress of individual technologies without averaging performance across technologies As such, the exclusion of nonstarters does not bias computed performance levels Third, our entire analysis tracks the performance of a technology given that it was commercialized We do not make any predictions or test any hypotheses about the productivity of R&D, in which case nonstarters would loom large

We find common factors in each of these cases First, each of the nonstarter technologies failed to develop an acceptable standard or to be included in a prevailing standard For example, wire recorders were excluded from the standard-setting process in favor of magnetic tape technology by the recording industry Such exclusion in the standards-setting process, also termed "technological lockout" (Schilling 1998), leaves the technology in a weak market position (Shapiro and Varian 1999) Second, either a new and better technology was introduced early in the life of the nonstarter technology (e g , magnetic tape and wire recorders) or the performance of the new technology was exceptionally superior to (or growing at a fast rate than) the nonstarter technology (e g , dot matrix printers and chain printers) Perhaps as a result of these two factors, the nonstarter technology did not show any improvement in performance on all dimensions that we tracked

The exclusion of these technologies does not lend support to any of the alternative hypotheses that we tested and rejected, such as a single S-shaped curve, single crossing, or generic dimensions of competition However, because we excluded nonstarter technologies, it would be wrong to conclude from our results that performance always improves over time

Alternative criterion variable Some authors propose that when testing the S curves, benefits per dollar should be used as the key dependent variable instead of performance (Chandy and Tellis 1998) Although all our current performance measures also have a denominator for proper scaling (e g , megabits per second), we investigate the sensitivity of our results to using this alternative metric We collected data on benefits per dollar for three categories desktop printers, desktop memory, and display monitors For each technology, we identified the product that offers the highest benefit per year and the price at which it was offered at its introduction The results in Figure 5, Panels A–C, do not provide support for any of the hypotheses that we rejected For example, we observed multiple crossings in all categories and new technologies being introduced with higher benefits per dollar Moreover, we found that the evolution of technologies is not even a monotonic function of benefits per dollar One possible reason is that firms charge higher prices for technologically advanced products until competition drives the price down

Multiattribute performance To address the question whether our results hold when we take into account multiple dimensions of performance simultaneously, we repeated the analysis using multiple dimensions in two categories desktop printers and display monitors For printers, we collected data on the speed of printers, which we measured as pages per minute, and print resolution For monitors, we collected data on screen size, which we measured in diagonal inches, and resolution Note that our findings on shape, path, and crossing patterns are robust to the use of this second dimension (see Figure 6, Panels A and B) We also calculated standardized values of performance on each dimension over the category for each platform, computed the sum of these standardized values over all dimensions of performance, and then plotted the latter index by time (see Figure 6, Panels C and D) The use of multiple dimensions simultaneously using this crude index fails to yield any patterns that might support consistency with S curves

Implications

Although the results of our study are not strictly normative, this study has several implications for managers First, using the S curve to predict the performance of a technology is quite risky and may be misleading for two reasons (1) Most of the technologies do not demonstrate an S-shaped performance curve, and (2) several technologies show multiple S curves, suggesting that a technology can show fresh growth after a period of slow or no improvement The critical importance of this issue is the following An analyst expecting an S-shaped curve would conclude that the first curve (on the subsample) meets the hypothesis He or she would then wrongly conclude that the technology has matured at the upper asymptote when indeed it has not As a result of this incorrect conclusion, the analyst would suggest abandoning the old technology The average period for the subsample S curves is 16 years, compared with an average of 23 years for the full period Thus, this error may result in premature abandonment of a promising technology as early as at least 7 years before its life to date

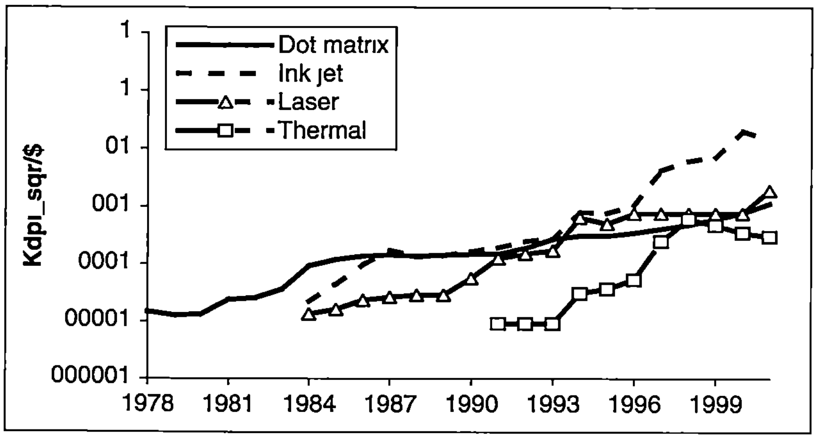
Second, the continuous emergence of new technologies and the steady growth of most technologies suggest that relying on the status quo is deadly for any firm Moreover, technological progress is occurring at an ever-increasing pace As such, vigilance for the emergence of new technologies coupled with efforts to improve the old technology can help an incumbent sustain and advance its position or even preempt competitors

Third, our findings indicate that the attack from below remains a viable threat Many new technologies start by offering low performance but subsequently threaten old technologies by improving at a much quicker rate Incumbents are prone to disregard these new technologies initially because they often cater only to a niche and not to the mass market However, these niches can grow into mass markets and eventually replace the old technology Furthermore, some new technologies can outperform old technologies even at the time of introduction

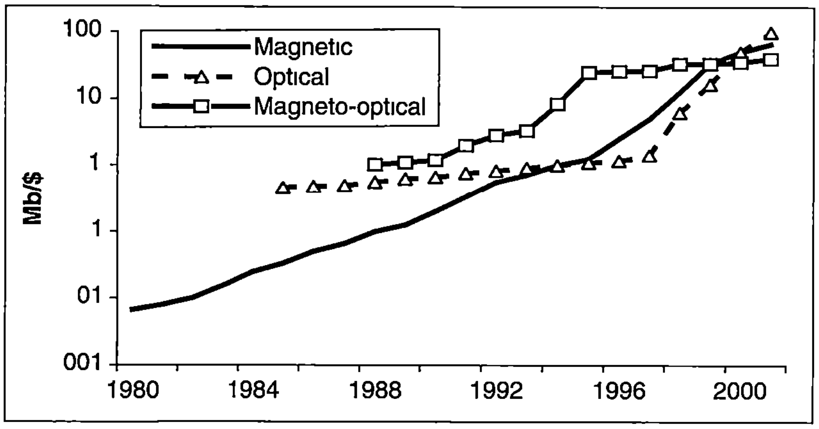
Fourth, another threat to incumbents is the emergence of secondary dimensions of competition Old technologies may be completely vulnerable to these dimensions Faced with such threats, incumbents need research to identify technological solutions to improve the value of the old technology and to identify market segments that value the contributions of the old technology Alternatively, incumbents need to explore R&D options on multiple dimensions to react appropriately to threats posed by entrants Fifth, first-

FIGURE 5
Performance per Unit Price

A: Desktop Printer Technologies (Resolution per Dollar)



B: Desktop Memory Technologies (Storage Capacity per Dollar)



C Display Monitor Technologies (Size per Dollar)

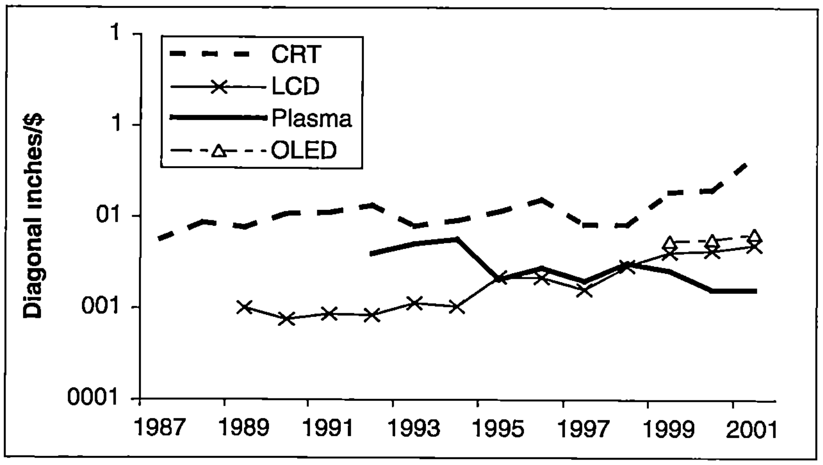
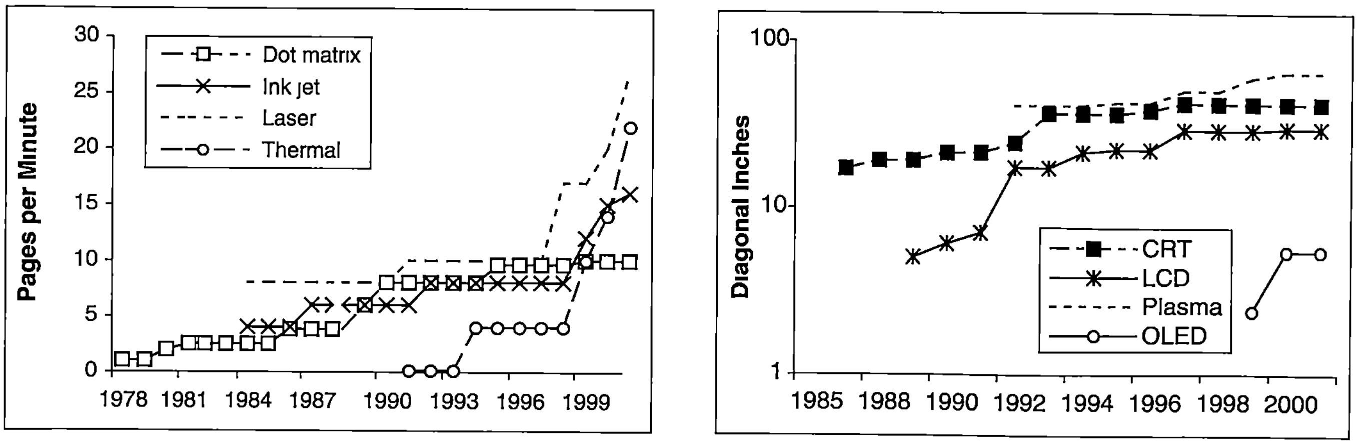


FIGURE 6
Multiattribute Performance

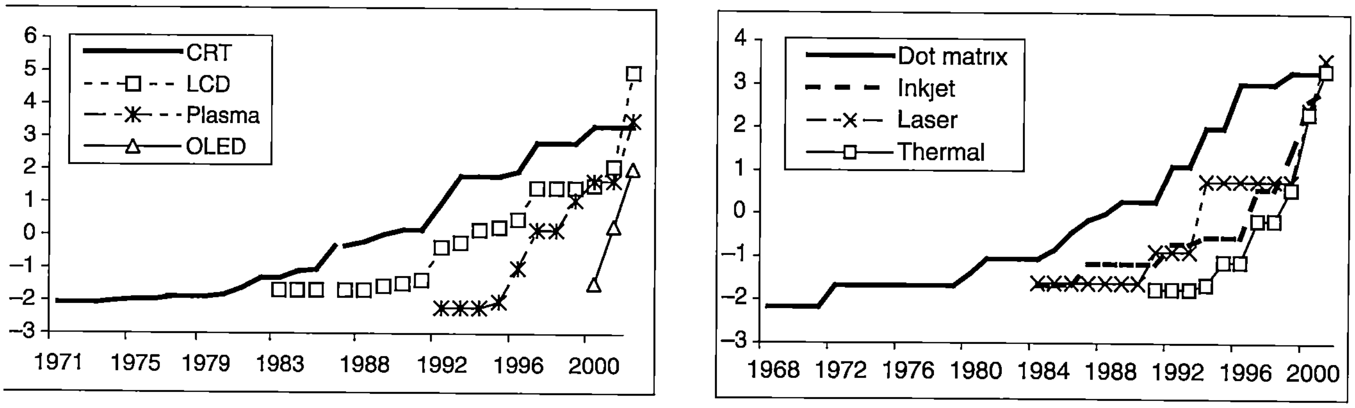


A: Performance of Desktop Printer Technologies on Speed

B: Performance of Display Monitor Technologies on Screen Size

C: Multiattribute Performance of Desktop Printer Technologies

D: Multiattribute Performance of Display Monitor Technologies



mover advantages may not be lasting because entrants introduce even more innovations than do incumbent firms

Limitations

This study has several limitations First, we needed to limit our analysis to only four categories because of the time-consuming nature and difficulty of data collection Second, our analysis of performance did not include cost to buyers Third, we did not incorporate sales of products based on each technology within a category Finally, despite our efforts to be as comprehensive as possible in data collection based on historical records, we must acknowledge the potential limitation of incomplete data availability in the first half of the twentieth century All of these limitations are potential opportunities for further research In addition, further research might also explore whether S curves are evident at the subplatform level, why there are long periods of no improvement in performance, and how firms should compete given the pattern of technological evolution

APPENDIX
Operating Principles of Sampled Technologies

Technology	Principle	Technology	Principle
Desktop Memory		**Desktop Printers**	
Magnetic	Records data by passing a frequency-modulated current through the disk drive's magnetic head, thus generating a magnetic field that magnetizes the particles of the disk's recording surface	Dot matrix	Creates an image by striking pins against an ink ribbon to print closely spaced dots that form the desired image
Optical	Stores data using the laser modulation system, and changes in reflectivity are used to store and retrieve data	Inkjet	Forms images by spraying ionized ink at a sheet of paper through micronozzles
Magneto-optical	Records data using the magnetic-field modulation system, but it reads the data with a laser beam	Laser	Forms an image on a photosensitive surface using electrostatic charges Then, it transfers the image onto a paper using toners and heats the paper to make the image permanent
Display Monitors		Thermal	Forms images on paper by heating ink through sublimation or phase change processes
CRT	Forms an image when electrons, fired from the electron gun, converge to strike a screen coated with phosphors of different colors	**Data Transfer**	
LCD	Creates an image by passing light through molecular structures of liquid crystals	Copper/aluminum	Transmits data in the form of electrical energy as analog or digital signals
Plasma	Generates images by passing a high voltage through a low-pressure, electrically neutral, highly ionized atmosphere using the polarizing properties of light	Fiber optics	Transmit data in the form of light pulses through a thin strand of glass using the principles of total internal reflection
OLED	Generates light by combining positive and negative excitons (holes emitted by anodes and electrons emitted by cathodes) in a polymer dye through the principle of electroluminescence	Wireless	Encodes data in the form of a sine wave and transmits it with radio waves using a transmitter–receiver combination

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Book Reviews

TERRY CLARK
Editor
Southern Illinois University

Vijay Mahajan

The Incomplete Autobiography of an Immigrant Marketing Professor

At the doctoral consortium held at the Emory University in 2002, Terry Clark, editor of the *Journal of Marketing* book review section, asked me if I would be interested in writing my professional autobiography I immediately agreed without fully realizing the implication of my commitment It turned out to be one of the most difficult things I have done in my life I did not know where to begin or where to end My professional autobiography spans the previous 30 years and is still incomplete I believe (and I hope) that my best years are still ahead of me I still have miles to go

Coincidentally, after I made the commitment to Terry, my university permitted me to accept a temporary position as dean of the newly established Indian School of Business in Hyderabad After living for more than 30 years in the United States, I was back in India, the land of my birth that I left in January 1971 The guiding principle of my life comes from a line in the *Gita*, one of the holy Hindu scriptures, that was reinforced in me by my dear mother who died at the age of 88 "Work hard and leave the results to God! Have no expectations!" That line came to me while I was traveling back to Hyderabad to begin my new position It seemed to be the perfect time to reflect on my career

The Years in India

My parents came from the town of Udhampur (when they were born, the population was approximately 2000 people) in the state of Jammu and Kashmir They were married when my mother was 13 years old and my father was approximately 17 (of course, they did not know their birthdates, and apparently, no records were kept at that time) My grandfather was a small entrepreneur and was uneducated He migrated from Moud, a small hill village north of Udhampur, where his parents herded cattle and sold milk and cheese to English hunters My people are called Dogras Although unrelated to us, Dogra kings ruled Jammu and Kashmir at that time

My grandfather believed that the best way to fight the Englishmen, who ruled India at the time, was to learn their language and become a lawyer My father was supposed to fulfill that dream, but he did not Much to the disappointment of my grandfather, he dropped out of college after he married my mother Thanks to her parents, my mother was one of the few girls who had studied until the eighth grade In her thinking, she was many years ahead of her time, and she was determined to fulfill my grandfather's dream and perhaps her dream as well She bore my father 11 children (unfortunately, one child died because of an unknown sickness) and fulfilled her mission to educate all of us

I am the eighth child I was born in Jammu, a neighboring city to Udhampur My grandfather had pushed my father to go to this "big" city and start a business in textiles with my uncle Whereas my mother gave us her mission and determination, my father's hard work gave us the financial means to study They became our mentors and role models Their large family, consisting of their children, grandchildren, and great-grandchildren, now includes doctors, engineers, academics, businesspeople, and bureaucrats My parents' sacrifices are worshipped by all of us My father's biggest regret (he died at the age of 92 last year) was that none of his children joined his business He always blamed my mother for this

I was born a few months after Mahatma Gandhi was assassinated and India became a Republic During that time, we had to obtain a "permit" (a kind of visa) to travel to India to study, vacation, or conduct business It was a turbulent time, Salman Rushdie has called my generation Midnight's Children Before I graduated from a government high school in Jammu, the education system had been redesigned at least three times The education system in the state of Jammu and Kashmir is still very weak Anyhow, I was first among all the high school students in Jammu and Kashmir

After leaving high school, I took the common examination that is given to all the high school students in India, and to my great shock, I was the only student in my state to pass the entrance examination for the Indian Institute of Tech-

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nology (IIT) Neither I nor my parents nor my parent's friends knew much about the IIT at the time (a high school classmate of mine had filled out my application) However, one of my brothers, who was studying engineering in Assam, insisted that I attend IIT, Kanpur Because joining my father's business was not an option, I wanted to become a doctor However, I was advised that there were already too many doctors in the family and that I should become an engineer I was further advised to become a chemical engineer, but that turned out to be a bad decision because I would never be able to go back to my family in Jammu Chemical engineers were not needed in Jammu and Kashmir Indeed, after graduation in May 1970, I could not find any suitable job in India

As a safety net, I had, as had many other IIT classmates, applied to two U S graduate programs, Texas A&M University and the University of Texas at Austin My thesis advisor, Arvind Kudchadkar, was a graduate of both of these universities I had a lot of fun at IIT, and I am not sure my advisor thought I was a serious candidate for graduate studies Regardless, he wrote me a cautious letter of recommendation After six months of trying to find a job in India, I decided to move to the United States I promised my father that I would finish my master's degree in one year and return home That was the fall of 1970

The U.S. Chapter: Becoming a Marketing Professor

Finishing My Education (1971–1975)

I landed in New York City with my certificates, some clothes, a few hundred dollars, and a new identity I officially changed my name from "Vijay" to "Vijay Mahajan" because I could not obtain a visa without a last name My cousin, who had come a few years earlier, bought me clothes and showed me Manhattan I was dazzled He told me that this country was so free that I could literally do anything I liked, and he directed my attention to some posters of X-rated movies to make his point!

I had come on the I-20 form of the Texas A&M University because I never received the University of Texas's version of the form However, my cousin advised me to go to Austin first It seems that the I-20 form from Austin never made it to India Because I had not responded, I was told that I could join the Texas program, but no scholarships were available for at least a semester Margaret Kidd, a remarkable woman at the international office, came to my rescue She found me a job working as a receptionist at a dorm for international students I worked four nights a week in exchange for a free room I lived on potato chips, bread, and milk for at least six months I threw up the first time I ate Indian food at the home of one of my classmates Although I was mostly vegetarian at that time, I did eat chicken occasionally I hate to describe my condition when someone told me that the chicken-fried steak that I had eaten and enjoyed at one of the functions was beef!

I began my graduate program in chemical engineering with Robert Gunn and worked on simulation models to estimate the thermodynamic properties of the high-boiling compounds My studies were going well, and I was on schedule to finish a Master of Science in one year and go back to India Part of my plan was to obtain a minor in business so I could have some "easy" courses My classmates advised that I take "Introduction to Management Science" and "Introduction to Operation Management" with Milton Schoeman, a young professor in the business school who had recently joined the faculty with a doctorate from Case Western in operations research

After I finished my first course with Milton Schoeman, he followed me like a shadow and eventually convinced me (and apparently a very stubborn associate dean) to join the doctoral program in operations management with a "big" assistantship teaching courses in operations management and business policy He convinced me that education was always good and that three more years in the United States was not going to hurt my plans to return to India My father was not happy, even though I was going to earn a doctorate in business I was never able to explain to my businessman father why I wanted a doctorate in business and what good it is

In the spring of 1972, I became the first Indian student, if not the first Asian student, to be admitted into the doctoral program in business at Texas I did not feel challenged and finished the program in less than three years On the advice of one of my fellow doctoral students from marketing, Dale Achabal, I asked a young associate professor of marketing, Robert Peterson, to serve on my committee He hated my first dissertation proposal on policy capturing and advised my committee that "Vijay is capable of doing more" and "should look for another topic" I was told that I should talk to Peterson for advice because he was the most vocal person in my committee and that I had to follow his advice Needless to say, I was not pleased Peterson recommended that I read two articles that were receiving much attention in marketing in early 1974 One was by Frank Bass on a new product diffusion model in *Management Science* The other was by Karl Joreskog on structural equations published in *Biometrika*

Coming from a chemical engineering background, the Bass article with differential equations intrigued me, but I would be lying if I said I always wanted to be a professor, much less a marketing professor I would also be lying if I said I always wanted to teach and do research Nevertheless, my encounter with this article was the beginning of my research career I must admit that I have no formal training in marketing, economics, psychology, or statistics One of the conditions for my admission into the doctoral program was that I take the MBA core courses Thus, my introduction to marketing was the six-week core course taught by Mark Alpert in the summer of 1972

In the fall of 1974, I gave a copy of my dissertation "Diffusion of Computers in the U S Hospitals" to a surprised committee To write the dissertation, I had learned (on my own during the summer of 1974) discriminant analysis, diffusion models, survey research, and the U S health care system I had also managed to get the dissertation sponsored by the Texas Hospital Association and had convinced an influential health care consultant to serve on my committee I had no trouble defending my dissertation in the early spring of 1975 This was the day for Milton Schoeman and Robert Peterson to tell me "we told you so" I was Milton Schoeman's first and last doctoral student A few years later, he had a heart attack and died

I also did not take too many courses in management science, other than one with Abraham Charnes, who made me cry because he did not like my research presentation I had no idea what he was teaching us in the class However, I did pass the class My committee recommended that if I passed the doctoral exam in the Industrial Engineering Department, I should not be required to take additional courses As luck would have it, I passed the exam with very good marks and thus missed the opportunity to take additional courses from some bright faculty

I thoroughly enjoyed my stay at Texas I learned Latin dances, ate too many dinners at Milton Schoeman's and Robert Peterson's homes, and drained too many whisky bottles I also made several professional friends, including Dale Achabal, Mark Alpert, Randy Batsell, Eli Cox, Bill Cunningham, Linda Golden, Bob Green, David Huff, Roger Kerin, and Bob Witt Even after I left Texas in 1975, they continued to help me evaluate my career choices On the advice of several of these friends, I decided to explore opportunities in the United States By this time, my father had given up on me He could not understand what I was doing in the United States, and he had already classified me as a "lost son"

I applied to several schools for a position in operations management without any luck Unfortunately, there were not too many faculty of Indian origin in business schools at the time The track record was unknown Around that time, Mark Alpert suggested that I move to marketing, and he contacted a few schools for me Joel Cohen, at the University of Florida, wrote to Mark and offered me a visiting position for a year The Management Department at Texas agreed to keep me for one more year as a lecturer Somewhat discouraged, I set my mind on going back to India However, as luck would have it, in May 1975, Milton Schoeman received a call that the School of Management at the State University of New York–Buffalo was searching for someone in operations management to teach in the health care area Excitedly, I flew to Buffalo for an interview in the middle of a big snow storm without winter clothes However, my presentation and several appointments were canceled I was desperate to leave Buffalo

To my great surprise, I received a call the following day and was offered the job To this day, I have not been able to figure out how I could get this job other than destiny The school also agreed to sponsor me for a green card if I could obtain a "training visa" for one year from the immigration office in San Antonio The immigration office declined, stating that there was no match between my education and the job The position at the State University of New York–Buffalo was for an assistant professor of management, and my certificate from Texas stated that I had a doctoral degree in business administration I was given a one-week notice to leave the country To say the least, I was amazed by the action of the immigration office

This news got to George Kozmetsky, who was then the dean of the business school To my great surprise, I discovered that he had been tracking my performance throughout my doctoral program and had even read my dissertation I realized that that was why he asked me about my grade point average whenever he saw me I learned to avoid him George was a first-generation Russian immigrant Along with Kingsley Haines of the LBJ School for Public Affairs, he sent a strong letter to his friend Congressman Lloyd Bentsen, along with my passport I was told to lay low for a week The day before I was supposed to leave the country, the dean's office gave me my passport stamped with the training visa George kept track of me until he died in 2003 I guess he loved for an immigrant like me to succeed He had been a very special person in my life

Become a Marketing Scholar (1975–1982)

Moving into marketing was a pure coincidence Although I was born in a place where it is very cold during the winter, I could not adjust to the Buffalo winters Otherwise, my stay at Buffalo was fun I had great times with Arun Jain and learned a lot from him and Brian Ratchford However, I was ready to go back to India

I called my Texas friend, Dale Achabal at Ohio State, to discuss my decision He was keen on my exploring possibilities at Ohio State After the Operations Management Department declined to hire me, Dale worked with Alan Sawyer, Jim Ginter, and Fred Sturdivant to hire me at Ohio State in marketing During my interview, Jim Ginter gave me a copy of the most recent issue of *Journal of Marketing Research* and asked me if I could understand the articles In his strong desire to hire me, Alan Sawyer drank with me most of the night He was helping me "prepare" a marketing presentation for the next morning Despite the hangover, I was hired

Thus, I began my first job in marketing in the fall of 1978 as Assistant Professor of Marketing at Ohio State University Next, I went to Wharton as an associate professor in the fall of 1980 In the fall of 1982, I became the Herman W Lay Chair Professor in Marketing at Southern Methodist University in Dallas This was my first tenured job These four years were the most grueling of my life I was learning, teaching, and researching marketing simultaneously I literally learned marketing on the job at Ohio State and Wharton, and I had to compete and survive

Jerry Wind called me during my first week at Ohio State to explore my interest at Wharton Although I had heard about Jerry from Arun Jain, I did not know him at the time During my first visit to Wharton, Jerry introduced me to Eitan Muller, a Kellogg graduate in the Economics faculty at Penn State University, who had also done a dissertation on diffusion models I developed strong professional and personal relationships with Jerry and Eitan To this day, I do not understand why Wharton decided to hire me, though I suspect that my Texas friend, Randy Batsell, who was then on the Wharton faculty, may have had something to do with it

My return to Texas at Southern Methodist University was prompted by another Texas friend, Roger Kerin He was aware that I disliked winters and caught me at the right moment in the winter of 1981 He worked with Mike Harvey and Tom Barry in his usual comical style to tell me, "Come back to Texas! Come back home!" I was 33 In 10 years, an immigrant from India had become an endowed chair professor of marketing

My Academic Life

Dogra people from North India usually do not aspire to become academicians We are happy to be small entrepreneurs, work for the government, or join the army Although I never dreamed of becoming an academic, I thoroughly cherish my career as an academician After all, what other profession would give me an opportunity (1) to travel to more than 20 countries to give more than 100 research presentations at major universities and be stimulated by comments of some of the brightest scholars and students on my research, (2) to work with and learn from more than 30 bright and energetic doctoral students in marketing, operations management, economics, strategic management, and information systems, (3) to be pushed to the limit of anxiety by senior executives in North America, Asia, South America, and Europe in executive development programs, (4) to be challenged by some of the most influential businesspeople, chief executive officers of *Fortune* 500 companies, and powerful heads of the government to establish a new world-class business school in India, (5) to provide consultancy on some of the most fascinating marketing problems to both entrepreneurial firms and large multinationals and realize that I am not that smart after all, (6) to be entrusted with the responsibility of editing major journals—*Management Science* (Planning and Forecasting Department) and *Journal of Marketing Research*—and realize that I cannot pretend to be an expert on every marketing issue, (7) to work with numerous coauthors, each of whom has left a permanent mark on my thinking, and (8) to serve on the editorial boards of several journals, including *Journal of Marketing, Journal of Marketing Research, Journal of Consumer Research,* and *Marketing Science*, and have the opportunity to learn from every article that I review?

All of these exciting things notwithstanding, the most exciting aspect of the academic life for me has been the opportunity to do research Because I did not have my formal training in marketing, Frank Bass's diffusion article initiated me into diffusion research, and Philip Kotler's (1971) book, *Marketing Decision Marking A Model-Building Approach*, initiated me into marketing modeling research Given that there was hardly any marketing modeling literature in the 1970s, I found Kotler's book exhilarating, and even now, I read it before writing any modeling article I also find Paul Green's articles to be brilliantly written, they are a real inspiration He knows how to converse with and lead the reader

Under the inspirational guidance of such great examples, I have written more than 100 peer-reviewed journal articles on innovation diffusion, new product development/marketing strategy, and marketing research methods, 38 of which were published in the select circle of journals that includes *Journal of Marketing, Journal of Marketing Research, Marketing Science, Management Science,* and *Journal of Consumer Research*, and I have written nine books

It has also been my great privilege to work with more than 60 coauthors (excluding my doctoral students, such as Chris Ensingwood, R Venkateh, and Ashutosh Prasad), including Dale Achabal, Sridhar Balasubamanian, Frank Bass, Rich Bettis (strategy), Bart Bronnenberg, Bob Buzzell, Abe Charnes (operations research), Wayne DeSarbo, Moshe Givon, Paul Green, David Huff, Dipak Jain, Arun Jain, Shlomo Kalish, Roger Kerin, Naresh Malhotra, Charlotte Mason, Bob Peterson, Brian Ratchford, Vithala Rao, David Schmittlein, Subhash Sharma, Seenu Srinivasan, Raj Srivastava, Joel Steckel, Wilfried Vonhonacker, Rajan Varadarajan, Andy Whinston (information systems), and Manjit Yadav

I have had 44 articles published with two very special people, Eitan Muller and Jerry Wind I am proud of my association with them Eitan is a well-trained economist, and Jerry is simply excellent at everything I have especially adored my relationship with Jerry and Eitan Some people have suggested that one of the lost tribes went to my homeland in Jammu and Kashmir, and Jerry and Eitan have often kidded me for belonging to the lost tribe I have learned so much from both of them how to think analytically, how to think strategically, and about work ethics Eitan and I have written 22 articles and one book on various aspects of innovation diffusion and dynamic marketing models, and Jerry and I have written 22 articles and five books on new product development and various strategic issues in marketing It is heartening to know that our professional colleagues read and cite what we wrote

Although I believe my best work is yet to be written, innovation diffusion is still my passion, so much so that I sometimes think I am still working on my dissertation Even after 30 years, I am still fascinated by the power of differential equations and the dynamics of innovation growth Among all my work on the topic, two stand as favorite children (1) "Innovation Diffusion in the Presence of Supply Restrictions" (Jain, Mahajan, and Muller 1991) and (2) "Software Piracy Estimation of Lost Sales and the Impact on Software Diffusion" (Givon, Mahajan, and Muller 1995) Both articles address innovation diffusion issues of developing countries in which 86% of the world population lives Having traveled in many developing countries, I am convinced that academics have ignored the marketing issues of these countries Living in India for the past two years has also convinced me of that I have explored this conviction further in *The 86 Percent Solution* (2005)

Two other favorite articles come from my interest in new product development and marketing research methods (1) "Issues and Opportunities in New Product Development" (Wind and Mahajan 1997) and (2) "A Conjoint Model for Measuring Self- and Cross-Price/Demand Relationships" (Mahajan, Green, and Goldberg 1982) I had great pleasure working with Jerry and Paul on these articles I continue to learn from the best and brightest wherever I can find them, and every problem is interesting to me

Miles to Go

My professional journey is probably not very different from many who, for one reason or another, decided to make the

United States their home I was fortunate to have met and worked with some of the brightest and kindest people in my professional life I thank my professors, my colleagues, my doctoral students, and my coauthors I learned something from each of them My life has been full of coincidences, with nothing planned or crafted Yet I believe that everything happens for a reason I accept every coincidence, bad or good, though sometimes with a bit of anxiety I hope that each coincidence has made me a more mature, tolerant, and grateful human being

This is an exciting time for marketing I hope that the field takes a lead with some of the challenges, including studying the issues of developing countries We simply cannot afford to ignore 86% of the world's population I remain a blessed and lucky Dogra boy from the hills of Jammu whose parents set no limits on learning However, I do sometimes wonder what would have happened if I joined my father's textile business in Jammu

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The Marketplace of Revolution: How Consumer Politics Shaped American Independence

by T.H. Breen (New York: Oxford University Press, 2004, 370 pp., $30)

When I was a graduate student in U S history 35 years ago, one of the burning questions was the following Given that the colonies were highly independent of one another and would not cooperate even in the face of an invasion by the French and their allies during the French and Indian War, how were they able to agree to mutual defense and independence from England in 1776? After all, a generation before, Benjamin Franklin and others tried in vain to create a loose confederation embodied in the so-called Albany Plan of Union Answering this question would also require the explanation of why these particular 13 colonies, and not any of the other British colonial settlements in North America and the Caribbean, became the United States Theories abound, mostly along various political lines, that suggest that similar cultures and political histories made ties that bound the 13 colonies despite their vast differences

T H Breen of Northwestern University attacks the problem from a new and illuminating perspective the world of goods and what they meant to the people who possessed and used them Breen states that between the Albany Congress of 1754 at the beginning of the French and Indian War and December 1773 (the date of the Boston Tea Party) and the following two years, mainland American colonists had gone through a sea change Before 1754, many people were still living on the frontier of the British world, and survival was their primary concern However, by 1773, a large percentage of the American populace had undergone what Breen calls (p xv) the "transformation of the Anglo-American consumer marketplace" This transformation began sometime during the middle of the century, and "as modestly wealthy families acquired ever larger quantities of British manufactures—for the most part everyday goods that made life warmer, more comfortable, more sanitary, or perhaps simply more enjoyable—the face of material culture changed dramatically *Suddenly, buyers voiced concerns about color and texture, about fashion and etiquette, and about making the right choices from among an expanding number of possibilities*" (p xv, emphasis added) In the generation from midcentury to the Revolution, colonists from Georgia to Maine tried to bring comfort and beauty into their lives through the use of imported consumer goods This all sounds very twentieth century and is not completely consistent with traditional views of eighteenth-century America

Breen's insight came to him at Colonial Williamsburg in Virginia as he walked through the Wallace Gallery, an out-of-the-way museum that showcases an array of manufactured goods that were imported to the colonies from Britain This prompted Breen to dig into scholarship on the material culture of the eighteenth-century Anglo-American world rather than the more conventional route of examining the intellectual roots of the revolution (for a good entrée into the vast scholarship on the material culture of the time, see Brewer and Porter 1993, McKendrick, Brewer, and Plumb 1982) His point is that without the transformation of the consumer marketplace, the intellectual climate of revolution would not have been able to strike the spark that it did The colonists were drawn together as "Americans," not by their hatred of the tyranny of Parliament but by their love for "English fripperies," which were still being decried from the pulpits almost at the eve of the Revolution

Breen also makes the point that perhaps by the time of the Stamp Act Crisis of 1763 and certainly by the time of the Boston Tea Party and the continuing crisis that the act caused, colonists along the Atlantic seaboard learned to trust one another Because they shared similar goods and services from one end of the seaboard to the other, they found that they were similar This similarity and the mutual confidence that it engendered made possible the popular upswelling of the Nonimportation Agreements These agreements were truly the precursor of the Second Continental Congress (that which in 1776 passed the Declaration of Independence)

Breen's analysis runs from a discussion of the myth of the hospitable colonial consumer causing the demand for British fripperies, to the change of merchant advertising in the mid–eighteenth century from mere lists of goods for sale to more descriptive lists in the newspapers, to the quintessential frippery and true hospitality product of the era, tea Tea required a matrix of associated products to prepare and serve pots, cups, spoons, sugar, and tea itself The latter two were imported and thus bore a duty to the Crown Tea had been drunk in large quantities in the colonies, however, it was foresworn by patriots after the Tea Party and in the face of the Nonimportation Agreements Many historians claim that the Tea Party turned America into a country of coffee drinkers almost overnight

So why review this book in the *Journal of Marketing*? One reason is that Breen is taking consumer behavior and giving it a front-and-center seat at the "nation-building" table The political revolution was preceded by a consumer revolution, without which it would have been more difficult to accomplish However, this is not a marketing book, nor even a book on consumer history, though there is a lot of consumption history between the covers Breen is a historian, not a marketing or consumer scientist He has not quoted any of the works that those who labor in such areas are used to seeing Some of his arguments would have been stronger had he cited Csikszentmihalyi and Rochberg-Halton (1981) on what goods mean to consumers, McCracken (1988) on the symbolic meanings of goods, and Rudmin (1991) on the ownership of possession The essence of his argument is that people became patriots partly because of what they wore, ate, and drank and that such things marked them as patriots or loyalists People who were willing to sign their names to the Nonimportation Agreements were perhaps more outspoken in their Whiggish proclivities, but if they shifted to homespun and returned to small beer from tea for breakfast and withdrew from the newly introduced custom of sharing tea with friends, their Whiggishness was just as evident However, considering the rigid boundaries of academe, it is unlikely that Breen is familiar with any of this literature However, those who know the literature will nod knowingly when Breen makes his points in the mid-eighteenth-century context

Scholars working in consumer behavior and the history of marketing will find this book interesting and suggestive Without exactly meaning to, Breen makes a strong argument for the importance of mundane marketing activities in turning the wheels of history In 370 dense pages, he takes late-twentieth- and early-twenty-first-century marketing minds back 200-plus years and shows some familiar things in an unexpected context

Dennis J Cahill
President, North Union Associates Inc

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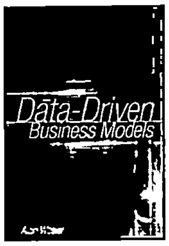

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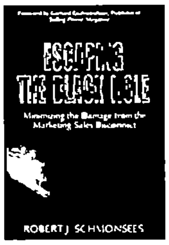

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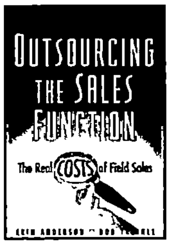

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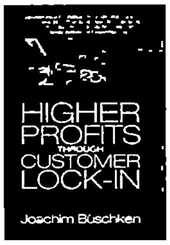

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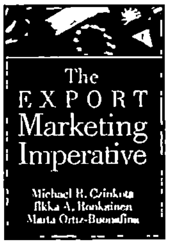

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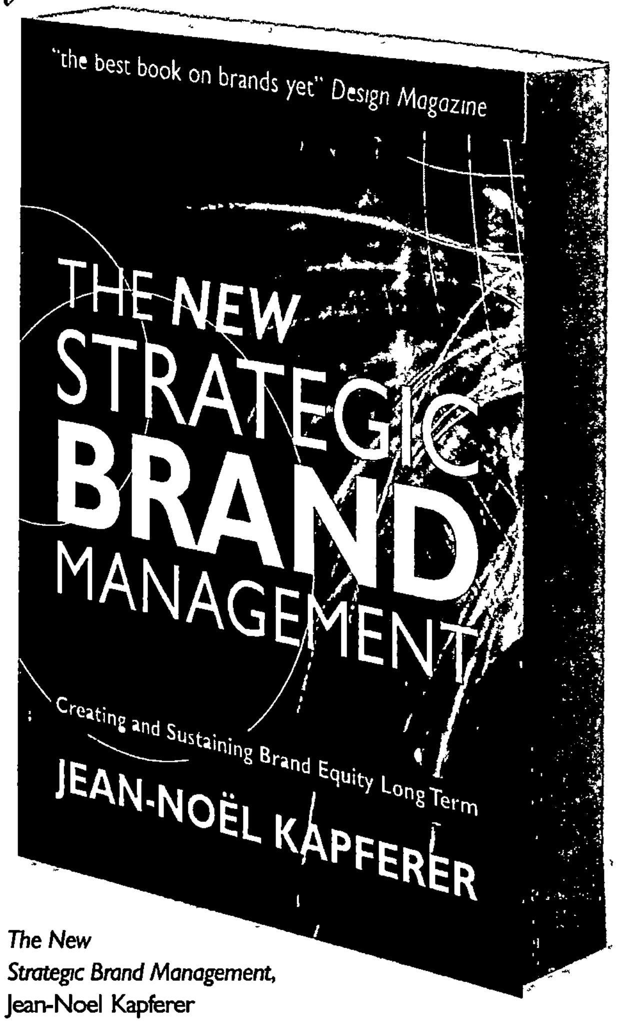
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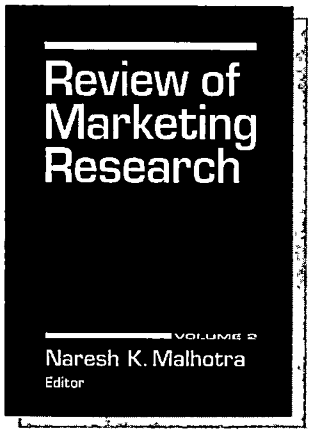

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Marketing Renaissance: Opportunities and Imperatives for Improving Marketing Thought, Practice, and Infrastructure

My three-year term as editor of *Journal of Marketing* concludes with the October 2005 issue On the basis of my interactions with various people in the marketing community, I believe that marketing science and practice are in transition, bringing change to the content and boundaries of the discipline Thus, I invited some distinguished scholars to contribute short essays on the current challenges, opportunities, and imperatives for improving marketing thought and practice

Each author chose his or her topic and themes However, in a collegial process, the authors read and commented on one another's essays, after which each author had an opportunity to revise his or her essay The result is a thoughtful and constructive set of essays that are related to one another in interesting ways and that should be read together I have grouped the essays as follows

- What is the domain of marketing? This question is addressed in four essays by Stephen W Brown, Frederick E Webster Jr, Jan-Benedict E M Steenkamp, and William L Wilkie
- How has the marketing landscape (i e, content) changed? This question is addressed in two essays, one coauthored by Jagdish N Sheth and Rajendra S Sisodia and the other by Roger A Kerin
- How should marketing academics engage in research, teaching, and professional activities? This question is addressed in five essays by Debbie MacInnis, Leigh McAlister, Jagmohan S Raju, Ronald J Bauerly, Don T Johnson, and Mandeep Singh, and Richard Staelin

Another interesting way to think about the essays, as Jan-Benedict E M Steenkamp suggests, is to group the essays according to whether they address issues of content, publishing, or impact (see Table 1)

These 11 essays strike a common theme They urge marketers—both scientists and practitioners—to expand their horizontal vision What do I mean by horizontal vision? In *The Great Influenza*, Barry (2004) describes the enormous strides that were made in medical science early in the twentieth century His depiction of William Welch, an extremely influential scientist who did not (as a laboratory researcher) generate important findings, includes a characterization of the "genius" that produces major scientific achievements

> The research he did was first-rate But it was only first-rate—thorough, rounded, and even irrefutable, but not deep enough or provocative enough or profound enough to set himself or others down new paths, to show the world in a new way, to make sense out of great mysteries To do this requires a certain kind of genius, one that probes vertically and sees horizontally Horizontal vision allows someone to assimilate and weave together seemingly unconnected bits of information It allows an investigator to see what others do not see and to make leaps of connectivity and creativity Probing vertically, going deeper and deeper into something, creates new information (p 60)

At my request, each author has provided thoughtful and concrete suggestions for how marketing academics and practitioners, both individually and collectively (through our institutions), can work to improve our field Many of their suggestions urge people and institutions to expand their horizontal vision and make connections, thereby fulfilling their potential to advance the science and practice of marketing In his essay, Richard Staelin writes (p 22), "I believe that it is possible to influence directly the generation and adoption of new ideas" I agree I ask the reader to think about the ideas in these essays and to act on them Through our actions, we shape our future

—Ruth N Bolton

When Executives Speak, We Should Listen and Act Differently

Stephen W. Brown

Compared with some of the essays in this issue, this one is less about marketing scholarship per se and more about how marketing scholarship can contribute more broadly to business practice I believe that marketing scholars can and should position their contributions more to business in general rather than limit them to marketing practice The underpinnings of this essay stem from a recent executive roundtable discussion that Ruth Bolton and I facilitated specifically for the purpose of developing this essay Participants in the hour-long teleconference included five executives from IBM, Yellow Roadway, Luxottica Retail (i e, LensCrafters and Sunglass Hut), McKinsey & Company, and Cisco Systems [1] By design, only one

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[1] Roundtable participants included Frank Baynham, Executive Vice President, Luxottica Retail, Gary Bridge, Vice President, Internet Solutions Group, Cisco Systems, Greg Reid, Senior Vice

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TABLE 1
Opportunities and Imperatives for Improving Marketing Thought, Practice, and Infrastructure

Content	Research and Publication	Impact
Business practice (Brown, Kerin)	Multidisciplinary research (MacInnis)	Readability (Bauerly, Johnson, and Singh)
Marketing in organizations (Webster)		Serving stakeholders (Raju)
International marketing (Steenkamp)	Scholarship evaluation (McAlister)	Big new ideas (Staelin)
Marketing and society (Wilkie)		
Does marketing need reform? (Sheth and Sisodia)		

of the executives was from marketing, yet all participants had a deep interest in customers and topics of interest to marketing scholars. The executives represented organizations that are active in business-to-business and business-to-consumer spaces, and all were board members of the Center for Services Leadership at Arizona State University.

In the paragraphs that follow, I highlight six business opportunities and imperatives that were discussed in the executive roundtable. Some are directly related to the research of marketing academics, and all are important to marketing scholarship. I conclude by arguing how a broader perspective in marketing scholarship can offer greater value to business practice.

Imperatives for Practice

At the beginning of the discussion, the executives cited opportunities and imperatives in the transformation of organizations through the integration of business processes and the use of technology. First, IBM's Mike Wiley noted an "unprecedented fusion between a focus on business process and the use of technology to transform, reengineer, and then enable new processes." In Wiley's view, this transformation generates competitive advantage, cost saving efficiencies, and enhanced customer experience.

Building on this observation, Gary Bridge of Cisco Systems indicated that most of these improvements require cross-functional integration:

> It's between the silos that we see almost all of the really large opportunities now. Within silos, I think there isn't much more to do. There just isn't much more we can do on supply chain management until we get to RFID [radio frequency identification]. There isn't much more we can do on CRM [customer relationship management] until we get everything connected. We do have all these governance issues to overcome that are between silos, not within silos.

According to Greg Reid of Yellow Roadway, the wave of mergers and acquisitions sweeping business adds to the mandate for integration. New organizational forms "[need] to find connectivity and ways to leverage synergies" to increase competitiveness and provide additional value to customers. McKinsey & Company's Nick Semaca agreed with this observation, but he argued that opportunities for improvement still exist within silos for many organizations.

A second major imperative is in the art and science of execution. The roundtable participants observed a growing shift in emphasis from strategy to execution. Bridge noted that major companies know one another's strategies partly because they are announced in the newspaper and are featured in business magazines. Pointing to the Ritz Carlton Hotels, Semaca noted that in some instances, superior execution can be the core of an organization's strategy, as it is with Ritz Carlton's approach to customer service. Although it may not seem that profound, Wiley stressed that executing the strategy is much more difficult than many people think. For many firms, execution occurs at the interface with the customer.

The drive for executional excellence leads to a third imperative: more consistency in organizations. For example, Marriott wants its processes to be the same and its customers' experiences to be consistently positive whether the property is in Shanghai or Chicago. According to Bridge, this imperative also arises from firms' needs for standardization, economies of scale, and better and faster decision making. He also noted that organizations function best when all associates know their roles.

Paralleling this trend toward consistency is a fourth imperative: empowering people who are touch points with customers. Frank Baynham of Luxottica Retail stressed that frontline employees must be given boundaries or parameters but must also have the flexibility to treat each customer as an individual. Bridge cited a U.K. airline that empowers its employees to write up to a £100 check to a customer in real time to address a problem.

A fifth imperative the executives discussed was the notable development of providing customers with solutions rather than simply goods and/or services. According to Bridge, this often manifests in greater service emphasis and better content. He referenced General Electric, which is less interested in selling jet engines than in selling the more profitable multiyear service contracts that take care of everything for the client. Baynham noted that being solution oriented means spending more time with the customer, first

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President and Chief Marketing Officer, Yellow-Roadway; Nick Semaca, Director and Leader, Americas Travel & Logistics Practice, McKinsey & Company; and Michael Wiley, General Manager, Services Transformation, IBM.

listening to understand the customer's needs and then offering solutions that he or she may not know are available. Reid cautioned that a firm must be able to deliver on the basics of its products and services before it can be successful in offering solutions.

The final imperative discussed was who is responsible for the firm's relationships with customers. Semaca and Wiley noted that in their organizations, the people who develop and manage customer or client relationships are the same as those who deliver the actual services and solutions. Wiley added that for key clients, this can be a single person at IBM. Other executives noted that the customer must be a shared responsibility throughout the organization. Notably, none of the executives mentioned marketing as being responsible for the customer. Implicit in the roundtable discussion was the view that marketing and sales often have a major role in making promises to customers and in generating new business. However, the keeping of promises and building customer loyalty is typically considered the responsibility of others in the enterprise.

Bridging Scholarship and Practice

Several of the essays in this issue note the weak linkage between marketing scholarship and marketing practice. Further contributing to this scholarship–practice gap is the diminished role and influence of marketing in companies. Sheth and Sisodia indicate (p. 11) that "many strategically important aspects of marketing . . . are being taken away by other functions in the organization." The authors also note that at many companies, marketing has become a form of sales support.

The executive roundtable discussion reinforced the decline in marketing's influence in firms. The term "marketing" was mentioned only a couple of times in an hour of intense exchange. Yet customers, clients, and competitiveness were on the executives' minds throughout the discussion.

When they were asked how business scholarship could help business practice, the executives believed that thinking in terms of processes and across disciplines would do wonders, but some also realized that the recognition and reward systems must be revolutionized to jolt academic researchers into thinking and acting outside their disciplinary silos.

The executives also advocated that academic research should be more problem driven and focused on rich contexts. Speaking from the perspective of a former professor, Bridge noted that 20 years ago, he believed that marketing scholarship was driving change in practice. Today, he noted, "I'm not seeing the continuous flow of new relevant ideas. The manipulating of two to three variables in an arcane situation is far a field from the day-to-day trade-offs we must make in business with dozens of variables plus volatile political and human factors."

Wondering whether the answer for building bridges may be in the translation, Semaca pointed to Harrah's Entertainment and its chief executive officer (CEO) Gary Loveman, a former Harvard Business School professor. This CEO catapulted his firm to a leading position in the gaming industry. Drawing on academic research, Harrah's developed sophisticated models of customer behavior and translated this work into guidelines and incentives for frontline and "backstage" employees to follow.

Two roundtable executives believed that business is partly responsible for the scholarship–practice gap. For example, Reid argued that business must play a role in working with academic researchers to determine practical applications. Referencing current research his firm is doing with Arizona State University's (ASUs) Center for Services Leadership (CSL), Baynham stressed the importance of upfront discussions so that both parties understand each other's objectives, the key questions to be studied, and the projected outcomes of the research.

Despite the significance of the scholarship–practitioner gap, the executives voiced notable interest in the customer and other topics of interest to marketing academics. What can realistically be done? Let me offer one recommendation to change our perspective significantly. When thinking about business, as scholars, we must broaden our perspective. In the near future, I do not believe that marketing will assume a more prominent position within organizations. However, many executives and managers outside marketing are interested in what marketing academics study, such as work that links customer metrics to business performance and work on the interface between the customer and the organization.

For scholarly contributions, I believe that we need to broaden our targeted practitioner segments (see Figure 1). Traditionally, academics view the practitioner audience as marketers. I propose an expansion of the practitioner segments as I illustrate in Figure 1.

To illustrate my proposition, I use an example with which I am familiar. The CSL at ASU was launched 20

FIGURE 1
Scholarship and Practice

	Scholarship		Practice Areas
Traditional view	Marketing	→	Marketing
		→	Strategic management
		→	Marketing
Enlightened view	Marketing	→	Operations
		→	Supply chain
		→	Human resources
		→	Finance

years ago by the university's Department of Marketing Although projecting a distinct brand to the business and academic communities, the CSL's leadership and knowledge workers are intertwined with the department Much of the CSL's substantive research is conducted by marketing faculty and doctoral students working with prominent firms (for more information about how the CSL has engaged firms in scholarly research, see Brown and Bitner 2006) More than 40 leading corporations are CSL members, including IBM, Marriott, Southwest Airlines, Siemens, and Harley-Davidson The board members that represent the member companies have changed over time In the early years of the CSL's existence, most of the business leadership came from marketing executives However, in succeeding years, more board members began to have nonmarketing backgrounds Today, the business leaders who advise the CSL include general management, operations, supply chain, finance, and marketing executives

What attracts board members and other business leaders to the CSL is its thought leadership in relation to customer focus and competing through service With most of the CSL's research being produced by marketing faculty and doctoral students, this business interest suggests that what marketing scholarship offers is too good to be confined to marketing practitioners, especially when many organizations have marginalized the role of marketing In other words, the bridge from scholarship to practice can be more fruitful if marketing scholars significantly broaden their view of what kind of practitioners may be interested in this work

A New Practitioner Focus

This essay features a roundtable of business leaders talking about the opportunities and imperatives that confront firms today The wide-ranging discussion covered issues of contextual and direct interest to marketing scholarship The leaders' observations demonstrate that the contributions of marketing scholars should be targeted to practitioner audiences beyond marketers The role and stature of marketing has waned in many firms Yet the interest in creating and delivering value to customers is at the forefront of business priorities Thus, as marketing scholars, we can build better bridges to practitioners when we begin to view our target markets as the many parts of a firm that are interested in customers, not just the marketers

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Back to the Future: Integrating Marketing as Tactics, Strategy, and Organizational Culture

Frederick E. Webster Jr.

Marketing thought leaders are taking a critical look at their field They have identified several issues that have slowed progress in the development of the marketing discipline and are moving toward a new view of marketing as both an intellectual discipline and a professional practice A successful reconceptualization of the field will recognize that marketing must be understood at three levels and will integrate these three dimensions of the marketing space into a coherent whole

Marketing as Tactics, Strategy, and Organizational Culture

Marketing has tactical, strategic, and cultural dimensions (Webster 1992) Over the past 60 years or so, the emphasis in research, teaching, and management practice has shifted among these dimensions At any given point, one has been emphasized to the detriment of the others For the past two or three decades, the tactical dimension has dominated, with an emphasis on operational (i e , input-level) marketing decision variables and short-term business performance results, especially sales volume and market share Methodological rigor has been emphasized over problem importance and relevance and has been facilitated by the availability of large databases on product movement and individual retail transactions Data and methodology have dominated academic research at the expense of both theory development and practical relevance, retarding the progress of the marketing discipline in a rapidly changing market environment The focus has been on transactions as the unit of analysis rather than on the long-term enduring economic, interpersonal, and interorganizational relationships that characterize most marketing activity and produce sustainable business performance and growth

The tactical view of marketing is rooted in the concept of the four Ps (i e , product, price, promotion, and place) and in the microeconomic optimization paradigm Mistakenly, the sum of the four Ps was labeled as marketing strategy, even though the most important of marketing variables—market segmentation, targeting, and positioning, which also appeared as marketing concepts in the 1950s—were not part of this tactical formulation

Short-term tactical outcomes, such as sales volume and changes in awareness, are easily observed and measured, and their effects on performance are easily isolated from those of other decision variables and competitive responses These measures are the same ones used to evaluate the weekly, monthly, and quarterly performance of most marketing personnel Pressure from financial markets and shareholders causes many firms to emphasize these short-term outcomes and to devote insufficient time to strategic thinking Strategy should guide tactics The sum of tactics without specific strategic analysis and formulation does not equate to a coherent strategy

Marketing strategy is part of the firm's business-level (as opposed to corporate-level) strategy, it is focused at the level of the strategic business unit (SBU), and it is expressed by the definition of the SBU's served markets—its segmentation, targeting, and positioning choices, its value propositions to customers, its positioning in the value chain, and its strategy for capturing a fair share of the value created for customers as a fair return for the owners The new definition of marketing recently adopted by the American Marketing Association (AMA) captures this strategic focus

> Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders

The strategic theme of marketing gained dominance in the 1970s as part of a pervasive organizational focus on formal, long-range strategic planning Marketing responsibility was expanded beyond selling, advertising, promotion, and distribution, with heightened emphasis on product innovation and new business development However, this emphasis was relatively short lived, and SBU-level marketing strategy was co-opted in many firms by the strategic planning department and in the academic realm by the emergence of the new discipline of strategic management in which market segmentation, value proposition, and customer orientation became key building blocks Marketing scholars devoted relatively little attention to these macro-organizational and environmental trends that were reshaping the field in practice as they focused increasingly on tactical, not strategic, decisions

The third dimension of marketing, organizational culture, is the most difficult to define, observe, and measure A general definition of culture is the things we take for granted, which emphasizes how difficult it is to observe Organizational culture is a system of values and beliefs that guide the actions of an organization's members From a marketing management perspective, organizational culture can be defined as organizational cognition, or a knowledge system that expresses itself in assertions about why things happen the way they do in a particular organization, helps members understand the organization's functioning, and provides norms for their behavior (Deshpandé and Webster 1989)

The so-called marketing concept is an expression of organizational culture, a normative statement that the firm should always put customers' interests first It is a management philosophy asserting that the existence and legitimacy of the firm ultimately depends on satisfying customer needs The marketing concept was rapidly accepted by managers in many companies, and it quickly became a part of marketing textbooks in the 1960s It was expressed in statements by some leading executives that the firm would ultimately be organized around the marketing function, that serving customers was not the means to the end of profitability but the end itself, and that marketing was too important to be left to the marketing people

Despite its inherent moral appeal, the marketing concept has several basic weaknesses Most important, it lacks strategic content It says nothing about how the firm should compete Like the narrow tactical focus, it ignores such basic questions as which needs the firm should focus on, who its customers should be, and how the firm should match its capabilities with the underserved needs of the marketplace This lack of strategic focus was a major reason many firms brought marketing under the influence of strategic planning departments When those departments were eliminated—a trend that occurred in the late 1970s and continued through the 1980s—marketing competence often went with it Although customer orientation has remained a central theme within marketing, it has received little scholarly attention and often is nothing more than lip service in firms that claim to adopt it Shareholder interests have dominated management attention and corporate values Both academic and business neglect of the fundamental importance of customer orientation reflect the notion that identifying its impact on business performance requires a long-term perspective and is extremely difficult to measure

The good news is that significant research in the past decade has found positive associations between long-term business performance and customer orientation (Deshpandé, Farley, and Webster 2002, Narver and Slater 1990) These studies developed reliable scales for measuring market orientation as a combination of customer and competitor orientation and have found these concepts to be correlated with business performance (Deshpandé and Farley 1999) In general, these results suggest strong support for the notion that true marketing competence, including customer orientation and innovativeness as advocated by the marketing concept, is central to the long-term success of the firm However, the view of marketing as organizational culture remains the least visible of the three marketing dimensions

Rebuilding the Influence and Integrity of Marketing

Because marketing has been downsized or eliminated as a corporate function in many firms, marketing competence has waned in those organizations Trying to assign marketing responsibility to the SBU level often fails because SBU managers do not have the necessary marketing skills, have many other demands on their limited time and resources, and are driven by short-term measures of performance Marketing advocacy depends more on the marketing commitment of a CEO who can articulate the importance of customer orientation as the keystone of corporate culture and the basis for increasing the value of the firm (Webster, Malter, and Ganesan 2003) The position of the chief marketing officer (CMO) was often created to fill the gap left by the elimination of corporate marketing departments, but only rarely has this position been filled by a person with the necessary strategic and analytical skills, the true support of a committed CEO, and a clear mandate to build marketing competence and strategic thinking throughout the organization

Recent trends in marketing publications suggest that the issues outlined here are being recognized and addressed by both scholars and practitioners Problems are being more clearly articulated, but comprehensive solutions have yet to be proposed Although an estimated three-fourths of companies have reorganized their marketing approach in the past five years, these changes are always driven by dissatisfaction with the status quo rather than by a clear vision of the optimal organization There is still a desperate need for the integration of tactics, strategy, and culture in the reconceptualization of the marketing field as a business practice and an academic discipline Our understanding of marketing must be embedded in our understanding of organizations, not just markets, and it must focus on issues of implementation, not just strategy formulation

It is not likely that business leaders or young scholars will be the source of new conceptualizations of our field Business leaders acting alone seldom have the time or the inclination for such disciplined reflection, though they can be the source of new ideas, insights about how the world of marketing is changing, and challenges to marketing thought leaders They must be listened to, but we should not expect them to do our work for us Young scholars, who by definition are the best trained in the latest techniques to do path-breaking research, cannot be expected to have either the perspective on the total marketing field or the ability to commit their time to developing integrated reconceptualizations of their newly chosen discipline There are few incentives for executives to step outside the owner-focused mandates of transactions-based generally accepted accounting principles and securities regulations to advocate the primacy of customers' interests or for academic newcomers to challenge old paradigms in the field

Despite the current cry for better measurement of the financial impact of marketing expenditures, we must not limit ourselves to the development of measures of marketing performance at the tactical level This would be self-defeating We need to develop measures, which will inevitably be less precise, of marketing's influence at the strategic and cultural levels if we are to understand marketing as an integrated body of knowledge and practice

The major challenges are conceptual, not methodological We must show renewed respect for conceptual thinking as opposed to methodological rigor We must tolerate work that bursts through and redefines the currently accepted boundaries of our intellectual domain We must respect insight and risk taking as much as we worship empirically verifiable propositions We must work to advocate a proper balance of rigor and relevance, both theoretical and practical, and bring to bear the results of scholarship that goes back to the roots of the development of all three dimensions of marketing Not all relevant knowledge is less than 20 years old!

Moving Out of the U.S. Silo: A Call to Arms for Conducting International Marketing Research

Jan-Benedict E.M. Steenkamp

Although marketing academics demonstrate diversity by borrowing from many behavioral science disciplines, we are less eclectic when selecting populations in which to test our theories We derive most of what we know from studies conducted in Western countries, typically the United States, the world's largest economy Although this research yields a valuable stock of theoretical and empirical findings, three important reasons mandate that we must now move out of the "U S silo" and conduct more research on an international basis In this essay, I discuss these three reasons and delineate the unique research challenges and opportunities for conducting research in emerging consumer markets (ECMs)

Three Reasons to Conduct More Research on an International Basis

Cross-national generalizability and contingencies in marketing theory To advance marketing as an academic discipline, we must examine the validity of our theories and models, as well as their generalizability and boundary conditions, in international contexts Cross-national generalization is implicit in our theories, that is, we usually develop theories without explicit reference to their socioeconomic, institutional, and cultural contexts In many instances, cross-national generalization should not be assumed To illustrate, consider market orientation, one of the most heavily researched constructs in marketing Research conducted in Western countries supports the detrimental effect of formalization and centralization on market orientation (e g , Jaworski and Kohli 1993) However, Burgess and Nyajeka (2005) show that this relationship does not necessarily apply to countries characterized by cultural hierarchy and the lower formal education of employees In countries such as Zimbabwe, moderate levels of formalization and centralization actually stimulate the information acquisition and dissemination that is necessary for a market focus Employees with less formal education need to be informed about market orientation and must have their roles clarified in order to deliver Transaction cost theory, a predominant theoretical framework used to explain organizational boundary decisions, provides another example Geyskens, Steenkamp, and Kumar (2005) find that the explanatory power of the transaction cost dimensions differs systematically and predictably across national cultural contexts

These and other examples (e g , Deshpandé and Farley 2004, Ozsomer and Simonin 2004, Scheer, Kumar, and Steenkamp 2003, Xie, Song, and Stringfellow 1998) illustrate the need to test even our most established theories in an international setting Including country and cultural variables enlightens us in new ways and clarifies marketing phenomena

Pushing the theoretical envelope A reason marketing theories may lack cross-national generalizability is that key country characteristics moderate the structural relations between the constructs in the theories We can push the theoretical envelope by identifying and including these pivotal country characteristics in our frameworks, leading to true contingency theories of marketing In marketing, national culture has attracted the most attention

Cultural norms and beliefs are powerful forces shaping people's perceptions, dispositions, and behaviors A society's shared cultural priorities frame the social and economic reward contingencies to which people and organizations must adapt for smooth and effective functioning For example, Tellis, Stremersch, and Yin (2003) find support for the hypothesis that the takeoff of new products is faster in countries that are low in uncertainty avoidance and high in the need for achievement than in countries that are high in uncertainty avoidance and low in the need for achievement In another example, Steenkamp, ter Hofstede, and Wedel (1999) find that a country's culture systematically and predictably moderates the effects of consumers' personal values on their tendency to purchase new products and brands These and other results of studies that include cultural variables offer important new insights Future studies have the potential to expand research on the effect of country contexts by drawing on socioeconomic theory (Etzioni and Lawrence 1991) and institutional theory (North 1990)

Inherently international issues The globalization of the marketplace is arguably one of the most important challenges that companies face today, firms need to assess how each element of their marketing strategy should be executed along the continuum of internationally standardized to locally adapted Marketing academics can contribute important new knowledge to these inherently international issues Although the entire domain of marketing practice could be examined, I choose only two to illustrate this point international market segmentation and new product launch strategies

Research evidence shows that international segments of consumers can be identified if data are corrected for methodological biases, both for products (Steenkamp and ter Hofstede 2002, Ter Hofstede, Steenkamp, and Wedel 1999) and services (Bijmolt, Paas, and Vermunt 2004, Bolton and Myers 2003) Much work remains to be done in this area, including accommodating changes in segment sizes and structural properties of international segments over time, developing proper procedures for correcting for response styles, integrating international segmentation in managerial decision making, and extending international segmentation studies to include ECMs more fully

The choice of product introduction strategy is crucial for companies In an important game-theoretic article, Kalish, Mahajan, and Muller (1995) derive optimal conditions for the implementation of a waterfall (sequential) versus a sprinkler (simultaneous) product introduction strategy A waterfall strategy is favored when the product has a long life cycle, when the foreign market is relatively small, exhibits slow growth, and is low on innovativeness and competitiveness, and when fixed costs of entry are high These analytical findings need to be tested empirically

The Special Case of ECMs

Most non-U S marketing research is conducted in other Western countries, even though more than 80% of the world's consumers live in ECMs These countries represent the growth and future of our companies Over the next decade, General Electric expects that as much as 60% of its revenue growth will be from ECMs, and its outlook is echoed by other multinational corporations such as Siemens, Philips, Procter & Gamble, and Volkswagen (*Wall Street Journal Europe* 2005) As such, ECMs pose specific research challenges, three of which I highlight business models, unit of analysis, and measurement instruments

Business models To be appropriate to ECMs, Western business models must often be recast The profit maximization goal and the pursuit of self-interest—the very foundation of many Western business models—may not be the driving forces in embedded cultures Other motivations and constructs must be substituted or incorporated For example, understanding organizational relations in China requires recognition of *guanxi*, or the "expectations that, sometime, favors will be returned" (Ambler, Styles, and Xiucun 1999, p 76) Similarly, in Africa, the cultural concept of *ubuntu*—a pervasive spirit of caring and community, harmony and hospitality, humility, respect, and responsiveness (Mangaliso 2001)—must be recognized and included in business models *Ubuntu* stresses kinship ties, reward systems linked to team performance, and consensus-based decision making When properly managed, firms derive significant competitive advantages from *ubuntu*, including intrinsic motivation, loyalty, and long-term effectiveness

The traditional business focus on relatively expensive, large-unit, overengineered products is unlikely to be successful in ECMs beyond small segments of relatively affluent consumers To illustrate, 95% of all shampoo units sold in India (representing 60% of total value) are single-serve units, many of which are designed for the poor and do not even require hot water (Hammond and Prahalad 2004) Brown and Hagel (2005) introduce the concept of "innovation blowback", they expect that ECMs will become important catalysts for product/service and process innovation because of the huge pool of youthful, low-income consumers, who are unusually demanding, open-minded, and adventurous Companies that are able to develop the new innovation skills to be successful in these markets (e g , production-driven networks, customer-driven modularity, process-driven services) are likely to gain competitive advantage, both in ECMs and in their home markets (Brown and Hagel 2005) However, little research has been conducted on these innovation skills

Unit of analysis The unit of analysis in individualistic Western countries is typically the individual consumer or manager, and research has largely focused on individual decision making However, group decision making is relatively more important in collectivistic ECMs, which are often characterized by high cultural embeddedness and complex webs of personal and business obligations We need more theorizing and better tools to conceptualize, measure, and analyze these social networks, to understand their role in group decision making, and to examine the reciprocal and dynamic relations between individual and group norms, attitudes, and behaviors

Measurement instruments On average, ECMs are characterized by lower levels of formal education Unfortunately, many established measurement instruments require a fairly high degree of respondent sophistication We urgently need simpler and shorter measurement instruments that can be used in ECM market research Schwartz and colleagues (2001) developed the Portrait Values questionnaire to assess value priorities of less-educated populations, and it has been used successfully in ECMs (Steenkamp and Burgess 2002) A cross-culturally validated short form of the Big Five personality instrument is also available Other researchers have sometimes constructed their own short form of existing scales on a rather ad hoc basis by including only the highest-loading items in their study (e g , Batra et al 2000)

Although some work has begun to address measurement issues in ECMs, much work remains to be done to construct shorter and simpler scales, new scales for concepts that are particularly relevant in ECMs (e g , embeddedness, *guanxi*, *ubuntu*), and different wording and response formats Some existing scales may need to be adapted at least partially to the local context Baumgartner and Steenkamp (1998) describe analytical procedures to analyze such combined emic–etic instruments and to compare results across countries

I hope that future editions of the well-known *Handbook of Marketing Scales* (Bearden and Netemeyer 1999) will contain more information on the validity of marketing scales in ECMs In the spirit of the innovation blowback, I except that marketing research in the United States and other Western countries will also profit from the development of scales that are cognitively less demanding

A Challenge

In her editorial, Bolton (2003) notes that international marketing research is underrepresented in *Journal of Marketing* (*JM*) The same applies to the other top marketing journals, which is unfortunate International marketing research enables us to assess the cross-national generalizability and contingencies of our theories and therefore to push the theoretical envelope in entirely new directions It also provides answers to inherently international issues Research in ECMs is especially necessary, given their significant market potential for our companies and their unique research challenges As a discipline, let us move out of the U S silo The world is beckoning us

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Needed: A Larger Sense of Marketing and Scholarship

William L. Wilkie

Has a Larger Sense of Marketing Gone Missing?

A broad unrest appears to be surfacing about our field's direction and practices, and I appreciate this opportunity to share my observations In recent years, Elizabeth Moore and I have been pursuing the question, What is marketing, anyway? (Wilkie and Moore 1999, 2003) [2] Our findings show that the field has changed sharply over time, and some considerable knowledge has been left behind during the general advance However, this has now gone too far Some of today's views of marketing scholarship are overly constraining, especially regarding broader conceptualizations of marketing To illustrate, consider the new official statement of our field

Limitations of the AMA's New Definition of Marketing

The AMA has recently defined the term "marketing" as follows

> Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders

I appreciate the professional appeal in capturing a marketing manager's role However, this definition's sole focus is on marketing within an individual organization, which limits scholarship

Dangers in adopting goals of all organizations engaged in marketing In my view, the greatest risk of equating all marketing with managerial decisions within organizations is that their goals are being adopted by marketing thinkers without any external appraisal This leads to something akin to blanket approval of the reality of the marketing world's undertakings When identifying ourselves with these goals and actions, whose perceived interests are being served, and does this matter? A brief consideration of egregious examples found in political campaigning, lobbying, fraud, bid rigging, energy gouging, channel stuffing, and so forth, alerts us that many organizations are highly imperfect entities with mixed motivations Furthermore, in most organizations, people other than marketers are setting priorities Organizational marketing is important, but it should not be taken to represent all of marketing thought

Limitations in addressing the competitive nature of our marketing system The sole focus on a firm also leaves us without strong concepts to assess multiple firms engaged in simultaneous marketing activity For example, when 8 or 12 firms compete in a market, how do we assess the "marketing" that is occurring on all fronts? Inefficiencies would be natural, but they are beyond the managerial purview itself Is this why our field has not had more of an impact on antitrust enforcement?

Limitations in addressing the marketing system's interactions with consumers One major task for every consumer is allocating his or her budget for purchases If we ask, How well do marketers help consumers with their budget and effort allocation decisions?" the answer is, "Very poorly" In the aggregate, all marketers simply propose too much consumption for each consumer The system acts as if consumer resources and wants are infinite and insatiable Every product and service category is advocated as worthy of consumption for virtually everyone Furthermore, within each category, marketers are offering consumers highly conflicting advice as to which alternative to select To cope, consumers must ignore or resist most marketing programs and respond positively to only a relative few [3] These characteristics surely make it difficult to equate each marketer's best interest with each consumer's best interest (I stress that these are not criticisms but rather characteristics of the marketing system that are not evident from the managerial perspective on marketing)

Limitations in addressing major societal and public policy issues There are two good examples of this issue (1) Childhood obesity is a growing problem in the United States Is a single-firm focus for marketing the most effective way to address this? (2) Direct-to-consumer advertising of prescription drugs is actually a public policy experiment in the United States How helpful have marketing academics been in devising or evaluating this policy?[4] My point is simple There are issues in our world that are larger than the problems of a single organization

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[2] Copies of our articles "Marketing's Contributions to Society" (Wilkie and Moore 1999) and "Scholarly Research in Marketing Exploring the '4 Eras' of Thought Development" (Wilkie and Moore 2003) can be downloaded at http //web2 business nd edu/Faculty/wilkie html

[3] For extended discussion, see Wilkie (1994, Ch 2)

Removing research opportunities from many marketing academics who would like to pursue these broader issues Given the AMA's definition, how are academic marketing thought leaders being prepared to address the role of marketing in society? To examine this, a survey of AMA–Sheth Doctoral Consortium participants was conducted (Wilkie and Moore 1997) The results show a striking gap between personal interest levels and training that is provided Two-thirds of the doctoral candidates reported having a personal interest in learning about marketing and society, but fewer than one in ten had taken even a single course on the subject, and their self-ratings of expertise were low Doctoral programs sorely need to reconsider this issue

It is troubling to realize that knowledge does not necessarily accumulate in a field, knowledge can disappear over time if it is not actively transmitted (e g , Wilkie 1981) One responsibility of academia is to place a field of study into proper perspective I believe that the concept of an aggregate marketing system (Wilkie and Moore 1999) should occupy a central position in marketing scholarship However, this will not happen unless current scholars accept that important knowledge is being lost from the active body of marketing thought As research specialization has proceeded (with good reason), this risk has increased Knowledge outside of a person's specialty may first be viewed as noninstrumental, then as nonessential, then as nonimportant, and finally as nonexistent My particular concern is for the subsequent generations of scholars (both today's and the future's doctoral students) who may not gain enough background to even realize that a choice is available to them

Understating the scope and importance of marketing Finally, a key finding in the "Marketing's Contributions" (Wilkie and Moore 1999) article flowed from a system illustration that included 75 marketing-related activities Of these 75 marketing system activities, we found that marketing managers control only approximately 30, or fewer than half They influence most other activities, but they are not in control of them, furthermore, these activities are not what is typically considered marketing according to the current view of the field To me, this understates the importance of marketing and calls for a perspective that is beyond the controllable decisions of marketing managers, such a perspective must reflect inclusive appreciation of organizational operations and of governments' roles in the facilitation of marketing system operations In brief, we need a larger conception of marketing

Is Marketing Academia Losing Its Heart?

A spontaneous episode at the 2005 AMA Winter Marketing Educators' Conference sent a signal about the state of our field today Kent Monroe was named the 2005 Distinguished Marketing Educator (a fitting honor), and I was one of the people asked to speak at his reception Midway through my remarks, I detoured from my outline and mused, "By the way, there seems to be a meanness creeping into our field, and we really don't need this" Much to my surprise, applause for this sentiment spread across the 100–150 people in the room A chord had inadvertently been struck that resonates with many marketing academics today

This little vignette suggests a high level of emotion behind the scenes of our professional lives Virtually everything in print is about facts, theories, methods, and applications Behind this, however, is the living reality of our academic lives and pursuits Collectively, we are the College of Marketing Individually, we are talented people who have each invested heavily to be in a position to contribute to knowledge

As the vignette suggests, overt attention needs to be paid to the quality of life in our field today It is especially painful to talk with people who, as young, aspiring scholars in the field, are now out of research academia (or virtually so), embittered by their experiences and still suffering from the blows to their youthful enthusiasm, idealism, and self-confidence[5] Are there steps to improve this situation? I think so

Briefly, I assert that it is time for a new marketing academic summit, perhaps as a task force on thought development, with the goal of enhancing the participation in and quality of marketing scholarship In addition to addressing what should be studied and how, I suggest that serious attention should be given to how research quality of life can be improved For example, informal discussions with senior academics suggest that journal acceptance rates currently hover at approximately 10%, and tenure achievement for first positions at research schools are 25% or less (recall that this is the outlook for presumably the best-trained, most talented people entering our field) It strikes me that these figures reflect a pall on the pursuit of knowledge (at least to the extent that it is internally motivated) and help engender the cynicism and meanness that has entered our college A key goal for this summit should be to strive to improve these rates and to engender a more positive context for our work[6]

Specific topics I believe deserve to be addressed include the following

- The unrealistic expectations of many universities today in context of a six-year tenure time frame and an overemphasis on "A" journals[7]

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[4] For an initiative in this area, see Farris and Wilkie (2005)

[5] I have developed further thoughts along these lines in an invited *Journal of Marketing* essay titled "On Books and Scholarship Reflections of a Marketing Academic" (Wilkie 2002) It can be downloaded at http //web2 business nd edu/Faculty/wilkie html

[6] For an earlier report, see AMA Task Force on the Development of Marketing Thought (1988)

[7] Note that I would personally advocate extending the tenure period to nine or ten years (with options for a person to go up early) and would require that papers actually be read and evaluated for their quality and contribution It would be difficult for the marketing field alone to gain such change, but our key institutions (i e , AMA, Association for Consumer Research, and Institute for Operations Research and Management Sciences) could surely

- The crucial role of a few key journals for the field—a positive or negative in the face of continuing growth and fragmentation?
- The sometimes destructive (and delaying) behaviors of reviewers, coupled with overreaching intrusions into freedoms of thought, theory, and method [8]
- Current strengths, weaknesses, and biases in doctoral education, together with exploration of postdoctoral opportunities
- Opportunities and problems presented by the twin forces of globalization and the Internet, including the explosion of business education around the world and the coming infusion of thousands of new marketing academics

In closing, let me say that academic marketing has wonderful potentials, and it deserves our care, consideration, and cultivation

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Does Marketing Need Reform?

Jagdish N. Sheth and Rajendra S. Sisodia

In August 2004, a day-long symposium organized by Bentley College was held in Boston to address the question, "Does Marketing Need Reform?" Speakers were asked to address how the marketing function can simultaneously bolster trust with customers and respect within organizations The event featured 17 speakers and drew approximately 125 attendees [9] Judging by the response, it appears that this topic hit a hot button for many in the discipline In this brief essay, we highlight some of the perspectives that were suggested at the symposium The actual presentations can be viewed online at www bentley edu/events/markreform/, and we are publishing a book of essays on the theme (Sheth and Sisodia 2006)

The Case for Reform

Speakers were unanimous in the view that marketing indeed needs significant reform It is ultimately marketing's responsibility to align the interests of customers and the company, and too often, this just does not happen As Glen Urban remarked, "Marketing effectiveness is down Marketing is intrusive Productivity is down People resent marketing Marketing has no seat at the table at the board level and top management Academics aren't relevant And we have an ethical and moral crisis Other than that, I think we are in good shape"

A moral dilemma Phil Kotler noted that marketing's fundamental dilemma stems from two of marketing's central axioms First, give customers what they want, and do not judge what they want Customers often want products that are not good for them (e g , tobacco, high calorie fast foods, sweets, alcoholic drinks) Second, many products may be acceptable to the customer but are harmful to society (e g , asbestos, lead paint, guns, gas-guzzling automobiles)

The central thesis of Johny Johannson's (2004) recent book is that marketing has become "morally corrupt" and has helped reduce the American way of life to its lowest common denominator while contributing to a rising tide of anti-American sentiment around the world He suggests that marketing promotes many dangerous and unhealthy products using "preposterous and phony" arguments Advertising is ubiquitous across old and new media, and there is increasingly nowhere for customers to hide (Johannson 2004)

Marketing's Image Problem

The image of marketing, far from strong to begin with, has taken a beating in recent years J Walker Smith presented results from a recent Yankelovich survey that found that 60% of consumers claimed that their opinion of marketing and advertising has become much worse over the past few years and that marketing and advertising is "out of control" On the basis of a study of the image of marketing using approximately 1000 consumers, Raj Sisodia reported that approximately 62% of the respondents had a negative attitude toward marketing, and only 10% had a positive attitude (Sheth, Sisodia, and Barbulescu 2006) On the positive side, marketing is often associated with creativity, fun, humorous advertising, and attractive people, but most people (including most business students) associate negative words, such as "lies," "deception," "deceitful," "annoying," and "manipulating," with marketing

Marketer Myopia

It could be argued that marketing academics and practitioners alike are suffering from "marketer myopia", that is, they are so focused on what they do that they fail to notice significant changes in the environment around them Summarizing his recent book, Jerry Wind suggested that new mental models are necessary to guide the thinking of marketing executives, practitioners, scholars, and journal editors (Wind, Crook, and Gunther 2004) He questioned whether the narrow and deep focus in academic marketing research and modeling is of value to business executives Wind also criticized the prevailing marketing mind-set that largely ignores the 86% of the world living outside developed countries, most with per capita incomes below $1,000 per year

Kay Lemon identified three key ways that marketers are myopic and thus fail First, most marketers fail to take a long-term view Their typical focus is on short-term gains improve sales this month, stock price this quarter, market share this week, shelf space compared with competitors

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approach other areas of business to explore a unified improvement for business schools I would not leave this up to the deans, they have other agendas beyond scholarship to pursue

[8] I wanted to use the subheading "Reviewers and Rigor Mortis?" but I could not work it in because of space constraints

[9] The speakers were Rajiv Grover, Steven Haeckel, Johny Johansson, Philip Kotler, Katherine N Lemon, Robert F Lusch, Raj Sisodia, J Walker Smith, Rajendra Srivastava, Mohanbir Sawhney, Jagdish Sheth, Glen Urban, Rajan Varadarajan, Frederick E Webster Jr, William Wilkie, Jerry Wind, and David Wolfe

This short-term perspective leads to angry and irate consumers, proliferation of "me too" products (because they are less risky), proliferation of "me too" research (because it is easier to publish), greater resistance to marketing, consumer confusion, and the threat of additional governmental intervention and regulation Second, marketers often fail to consider all relevant constituencies Although many do a good job of considering current customers, they fail to consider the effect of marketing on those not directly in the target market Third, marketers fail to appreciate their own strength and power Marketing is infusing and transforming cultures around the world Marketers must be mindful of how powerful their tools are and understand their short- and long-term effects on consumers Marketing academics must teach students how to use that power responsibly

Demographic denial Peter Drucker (1999) has identified the worldwide decline in birth rates as the number one issue that society faces today David Wolfe highlighted two demographic trends First, marketing has yet to come to terms with the reality that the majority of adults in the marketplace today are older than 40 years of age By 2010, annual spending in the United States by households that are headed by people under the age of 45 is projected to be $1 62 trillion, compared with $2 63 trillion by those 45 years of age and older, that is a trillion dollar difference Yet most marketing remains resolutely youth fixated Wolfe suggested that marketers need to understand developmental psychology to appreciate how customers evolve continuously over their life spans Second, around midlife, women begin to outnumber men quite significantly However, most marketing today remains aggressively masculine in character and fails to speak effectively to women or aging men

Marketers' Diminished Role and Influence Within the Company

The fundamental value of a marketing mind-set is not in question As Rajiv Grover put it, "If marketing is defined as satisfying the expressed and latent needs of customers, it is well accepted out there, so marketing is not really being marginalized But marketers are being marginalized, in the sense that many strategically important aspects of marketing (e g , pricing, ad budgeting, new product decisions) are being taken away by other functions in the organization" Fred Webster noted that marketing management was once considered destined to assume ultimate influence and control over the U S corporation and become the dominant function (Keith 1960) With few exceptions, this has not happened A key problem is that most marketing managers are not finance literate and have trouble answering questions about the productivity of expenditures Equally important, other managers are usually not marketing literate Raj Srivastava suggested that marketing does a poor job of communicating the value it creates because marketers do not speak the "financial language" There is little appreciation for the balance sheet power of brands Marketing is considered a variable cost, not a committed cost, so its budget is considered "soft money" that can readily be cut Marketers are hard-pressed to justify their budget requests because they command little trust within most organizations

An Agenda for Reform

Regain trust with customers Building on his recently published article (Urban 2004) on the subject, Glen Urban proposed a possible new paradigm for marketing Instead of just trying to create products their customers might want, marketers should actively advocate for their customers across all departments within the company Several forces are converging to increase customers' power the Internet-fueled ability of increasingly skeptical customers to talk to one another, reduced media power, overcapacity, and more stringent government regulations More and more customers are actively exercising their power, many becoming crusaders for or against companies In response, companies must choose between "old style marketing" (i e , the push model that characterized marketing from approximately 1950 to 2000) and "trust-based marketing," whereby companies cooperate and work with customers to make them successful As Urban said, "If you gave customers full information and the best technical and buying advice you could, would you suggest they buy your product? If you can't say that, then you must work on a better product"

Use technology to enhance mutual value Sawhney suggested that the implication of widespread connectivity is a greater need for collaboration with customers and business partners because most value creation is now outsourced He proposed that companies must integrate customers into an entire set of end-to-end processes from ideation to support Sawhney also noted that technology is enabling customers to move toward "do-it-yourself' marketing If they choose to, customers can disintermediate marketers from the marketing process, they can self-inform, self-evaluate, self-segment, self-price, self-support, self-organize, self-advertise, self-police, and self-program

Broaden marketing's perspective Marketing has come to view itself too narrowly and, in many cases, merely as sales support It must adopt a much broader perspective centered on improving the quality of life for customers Marketers should develop new marketing models that focus on long-term issues about which customers really care To counteract the pressure to produce products that are harmful to people or to society, marketing should take the responsibility to educate customers in ways that positively affect the world Marketing should also work to promote better corporate citizenship Kay Lemon noted that a new corporate citizenship metric (www accountability org uk) on global accountability ranks only one U S company in the top 100 (Hewlett-Packard) Marketing has great power to align corporate interests with great societal causes, such as alleviating poverty and disease Jerry Wind highlighted C K Prahalad's (2004) recent book, which shows how marketing can help solve real problems and alleviate poverty on a large scale by targeting "the fortune at the bottom of the pyramid"

Make marketing a true profession Today, anyone can go into business as a marketer To strengthen marketing as a profession, Sheth suggested requiring certification and recertification of marketing practitioners, similar to the accounting and medical professions He also suggested the establishment of a National Academy of Marketing, similar in reputation and mandate to the National Academy of Science

Revitalize marketing within the organization Srivastava noted that marketers have historically focused on sales-related measures, such as market share, but have largely ignored profitability and shareholder value Marketing must do a better job managing its resources and demonstrating the value of investing in marketing programs The role of marketing in achieving price and stock appreciation is beginning to be understood, but other effects also need to be measured For example, a strong brand confers greater clout in terms of dealing with distributors and can lead to the ability to negotiate lower distribution costs

Sheth suggested that instead of being managed as a line function, marketing should be designated as a corporate staff function (similar to finance, information technology, legal issues, and human resource management), with both capital and operating budgets Marketing's domain should include branding, key account management, and business development The head of corporate marketing should report directly to the CEO, and a standing committee of the board should be formed to oversee the company's marketing activities

Use new terminology Reflecting a growing trend, Southwest Airlines has named its department of marketing the "customer department" and its human resources department the "people department" Sheth suggested that the word "marketing" has lost so much credibility that companies would be better off using the designation of chief customer officer rather than CMO

Many have come to believe that the term "consumer" objectifies customers and creates a one-dimensional image in the minds of marketers Kotler suggested that using this term creates the image of customers with their mouths open, waiting to be filled by marketers Instead, he proposed the term "prosumers," which acknowledges that customers participate in the creation of value

Learn from other disciplines Several speakers commented on the continuing need for marketing to learn from other disciplines Wind suggested that marketing is becoming too self-centered and isolated now that it has matured as a discipline Likewise, Sawhney commented that marketing began as an eclectic discipline but has become increasingly insular and has come to view itself falsely as self-contained He proposed that marketing transcend its narrow horizons and begin learning again from neighboring disciplines

Reform marketing academia Several speakers spoke of the responsibilities of marketing academics in restoring marketing to a position of respect in companies and in society A recurring theme was the need for greater relevance in academic research Webster suggested that there has been an increased emphasis on rigor versus practical relevance Academic research must become more relevant without sacrificing rigor He added that it is critically important that research become more idea driven, not just data driven Sheth suggested that academic research should focus on newsworthy domains and discoveries, similar to medicine and engineering Grover recommended that marketing be taught as an art and a science (analogous to cooking) because the creative dimension will always be crucial to good marketing

Conclusion

As the world becomes increasingly market driven and globally competitive, marketing is becoming marginalized at a time when it is most needed Unfortunately, the "side effects" of marketing today often overwhelm its intended main effects Can marketing's reputation be redeemed? Not unless it resolves the fundamental contradiction at its core Marketing claims to be about representing the customer to the company, but it remains mostly about representing the company to the customer, using every trick in its bag to make customers behave in the company's best interests

Speakers at the symposium were unanimous in asserting that "marketing as usual" is not working any more and that fundamentally new thinking is necessary to rejuvenate this vital and potentially most noble of business functions Done right, marketing is truly an enlightened undertaking As Phil Kotler and Bill Wilkie reminded the attendees, marketing has made major contributions to raising standards of living around the world It has played a role in creating markets for products that reduced drudgery, increased convenience, and enriched life in general in the twentieth century

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Strategic Marketing and the CMO

Roger A. Kerin

Marketing has evidenced a renaissance of sorts in the corporate hierarchy with the creation of the CMO position According to a recent Booz Allen Hamilton study (Hyde, Landry, and Tipping 2004), 47% of *Fortune* 1000 companies have a CMO designation on their organizational chart This study also concluded (p 37) that "[c]ontrary to prevailing wisdom, the marketing function is more important now than ever before" Marketing has indeed found "a chair at the table" (a phrase to describe elevation to the senior executive suite), but the CMO's chair has proved to be a hot seat A CMO's tenure averages 22 9 months, only 14% of CMOs for the world's top brands have been with their companies for more than three years, and fewer than half of CMOs have been on the job for 12 months (Welch 2004)

The CMO "churn and burn" statistics are not surprising My interactions with CMOs are consistent with the impressions of McGovern and Quelch (2004), who cite several reasons for the high casualty rate Many CMOs mention that the position is often ill-defined, there is little formal authority, corporate expectations are frequently unrealistic, and credibility and legitimacy with other company "chieftains" is absent I would add that some CMOs simply overpromise and underdeliver on proposed top-line initiatives and bottom-line outcomes Indeed, it may be that few marketing specialists are up to the task My essay puts these recent developments into context and considers future prospects for the CMO position, if not an individual, as the embodiment of strategic marketing perspectives and practice in the corporate executive suite I also address implications for scholarly research in marketing and executive education

Marginalization of the CMO

The origins of the CMO can be traced to the late 1950s and early 1960s, when the role of chief marketing executive emerged in corporations At the time, CEOs focused on converting their companies from a production or sales orientation to a market(ing) orientation (Keith 1960) A common practice was to aggregate and centralize marketing staff resources at the corporate level for the purpose of developing marketing policy and planning guidelines that could be adopted within each of the company's business units Subsequently, CEOs looked to these executives (now labeled corporate vice president or senior vice president of marketing) to (1) promote strategic marketing thinking in their organizations, (2) represent a genuine marketing presence and mind-set at corporate headquarters, and (3) assist in the preparation and implementation of business unit marketing strategy designed to achieve a competitive advantage By one estimate, about half of the largest U S manufacturing firms had an individual who was considered the chief marketing executive in the early 1970s Most reported to the company chairman or to the president (Hopkins and Bailey 1971)

The following 25 years witnessed the gradual devolution of corporate-level marketing and its strategic role and influence in U S companies Why did this happen? There are at least four interrelated reasons (1) the proliferation of businesses and product lines in the aftermath of aggressive acquisition activity common to companies in the 1970s and 1980s, (2) the emergence of strategic-planning staffs largely as an outgrowth of the budgeting and financial-planning process associated with multibusiness firms, which in turn co-opted marketing's strategic role, (3) the perceived ineffectiveness of a single, corporate-based marketing head and staff to address an increasingly diverse set of markets and business models, and (4) the growing autonomy of business units followed by the dispersion of marketing responsibilities and personnel among individual operating units (Hopkins and Bailey 1984, Kerin, Mahajan, and Varadarajan 1990) By the late 1990s, the corporate marketing presence had become an administrative cost center and assumed a supportive role in many companies under the direction of a vice president for marketing services This position entailed managing marketing–service supplier relationships (e g , advertising agencies, research firms) with a primary emphasis on coordination, monitoring, guidance, and dotted-line links extending into business units Noticeable in this administrative and supportive role was the limited reference to strategic marketing perspectives as a source of insight or direction for corporate or business strategy

Materialization of the CMO

So what is new? First, the conditions that circumscribed the presence, role, and influence of corporate-level marketing are disappearing Companies are divesting unrelated businesses and pruning product lines and brands Corporate strategic planning departments have been dismantled as a consequence This "deconglomeration" process has heightened senior management's attention to and involvement in business and marketing strategy formulation and execution to generate top-line growth from existing businesses (Varadarajan, Jayachandran, and White 2001) Second, the majority of CEOs today have significant marketing and sales (along with operations) experience in their career history before assuming general management responsibilities at the business unit level (Allen 2005) Most are in their 50s and actually benefited from marketing responsibilities (and accountability) being delegated to business units over the past 25 years These executives recognize the potential role and contribution of strategic marketing thinking in the executive suite Otherwise, the CMO position would not exist Third, previously autonomous business units have been reined in as CEOs mandate "best practices" across units, resource sharing, comarketing efforts, and the like

These structural changes have cleared the path for corporate-level marketing to find a chair at the table again in the senior executive suite However, those who occupy the chair will not necessarily be marketing specialists or have the same experience, skills, and knowledge as chief marketing executives 35 years ago, much of which was acquired in brand management systems and advertising agencies (Silver 2003) Rather, the CMO position demands that its occupant combine a broad business outlook, multiindustry experience, and cross-functional management expertise with the analytical skills to interpret extensive market and operational data and an intuitive sense of consumer, customer, and competitor motivations and market-based assets The position also expects that its occupant view technology not so much as an enabler of marketing processes and activities but as a key differentiator and a means to create, communicate, and deliver value to consumers Finally, the position requires the action and results orientation of frontline marketing Chief marketing officers do not have the luxury of hiding behind the pernicious oxymoron "great strategy, poor execution" as evidenced by the position's high turnover

The resurgence of corporate-level marketing, manifest in the CMO position, has important implications for the academic marketing community For example, a recurrent theme in the Marketing Science Institute's (MSI's) 2004–2006 research priorities (McAlister and Taylor 2005) is the need for research that has value to senior management My sense is that this research, regardless of topic, should explore multifunctional, business-level issues, identify cause-and-effect relationships, and focus on metrics that matter to CEOs and corporate boards Marketing educators in executive MBA and senior executive development programs must address the demands placed on the CMO position and modify course content and pedagogy For example, emphasis should be placed on improving data and financial analysis skills and encouraging creativity in framing strategic marketing initiatives in light of implementation considerations and financial targets

Them Versus Us: Woes on the Bifurcation of the Academic Marketing Discipline[10]

Deborah J. MacInnis

The Domain of Marketing

Marketing is a multifaceted field that leverages perspectives from multiple disciplines to study substantive topics ranging from the study of the macro to the micro, the organization to the consumer, capitalist practice to social welfare, and the local to the global Marketing also serves an important applied constituency that demands tools (theories, methods, and measures) to inform marketing, consumer, or public policy actions As is true in most scientific disciplines, the study of the substantive topics in marketing often involves a diverse set of theoretical and methodological perspectives to understand and appreciate fully all aspects of the phenomena under study For example, the impact of advertising on consumers is enriched by theoretical perspectives from linguistics, literature, psychology, sociology, anthropology, and economics and by such diverse methodological approaches as ethnography, experimentation, survey research, discrete choice models, and quantitative modeling techniques using aggregate data Through this multimethod, multitheory perspective, we (the "blind men") gain insight into the "elephant" known as advertising

Marketing and Science

There is general agreement in the philosophy of science that data or ideas are used to advance a theory, which is tested by data, which in turn leads to theory revision and additional testing through relevant methods and acquired data (Zaltman, Le Masters, and Heffring 1982) In an applied discipline such as marketing, there is also hope that findings will provide substantive insights that are relevant to managers, consumers, and policymakers In this ideal world, progress is made by a strong interface between data and theory, rigor and relevance Because various methodologies differ in their emphasis on external versus internal validity, their obtrusive versus unobtrusive nature, and the study of universal versus particular systems (McGrath 1981), knowledge accrues through the use of diverse methods that compensate for the weaknesses of others Such compensation is warranted because the decisions made on the basis of this research have the potential to affect applied constituents (see the essay by Raju)

Self- and Other Categorizations

However, movement toward such multidisciplinary and multimethodological perspectives seems to be inconsistent with a strong trend I have observed in the field At a fundamental level, academics in marketing identify themselves not by substantive interest (e g , advertising, materialism) and theoretical orientation but by methodology Specifically, there is an evolving bifurcation of the field in which researchers categorize themselves and others as "behavioral" (often meaning experimentalists who study consumer behavior but sometimes also meaning "ethnographic types") and "modelers" Some also identify themselves as "managerial types," which typically means behaviorally oriented people who use surveys to study organizations

Houston, We Have a Problem

Although self- and other categorizations by methodology may be appropriate in some contexts, some intellectual and disciplinary problems accrue when categorization by method becomes a focal lens for viewing the field Consider the following questions

What is important? First, categorization by method affects the focus on theory versus data versus relevance Academics taking a behavioral approach increasingly focus on theory, often at the expense of relevance or generalizability, it is quite possible that we may answer theoretically interesting questions about phenomena that exist only in the artificial world we create for purposes of testing theory Indeed, in some cases, articles are so far removed from marketing that it is difficult to understand (1) what they have to do with marketplace phenomena or (2) why they are published in marketing rather than psychology, sociology, or anthropology journals Modelers seem to focus on data and relevance with increasingly little regard for theory "Strategy types" focus on theory, data, and relevance, however, little gets through the review process because authors are being subjected to the standards that are used in both behavioral (strong theory, methodological controls) and modeling (real-world data, advanced techniques) contexts (Stewart 2005)

What is good research? Second, categorization by method leads to inconsistent rules about what constitutes "good research" For example, in the behavioral area, articles are not viewed as interesting unless they advance theory or entail interactions (e g , demonstrate that the theory does not apply under certain conditions) In contrast, in the strategy area, articles are not viewed as interesting unless they demonstrate generalizations across populations, have multi-item scales, and use multiple informants In modeling, articles are not viewed as interesting unless they advance a new technique

Is your research rigorous? Third, a focus on methodology can create an overemphasis on empirical articles, particularly those that study short-term marketing tactics (see the essay by Webster), and can encourage "marketer myopia" (see the essay by Sheth and Sisodia), perhaps at the expense of big ideas (see the essay by Staelin), theory development, conceptualization, and integrative frameworks that have broader applicability and more time unbounded potential (Lehmann 2005, MacInnis 2004)

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[10] Wilkie and Moore (2003) have provided a rich and deep historical perspective on the evolution of the field of marketing With their systematic study as a background, I comment on observations about more recent history and trends in the discipline that cause concern

Where's my hammer? Fourth, categorization by method leads to the study of only those things that can be examined with a prevailing methodological approach For example, because the behavioralists in marketing are overrepresented by experimental approaches to marketing and consumer behavior, there are major gaps in the understanding of important and underresearched domains that are difficult to understand with only an experimental approach, such as those applicable to broad economic, social, and societal issues Several Association for Consumer Research presidents have noted such gaps (e g , Andreasen 1993, Belk 1987, Lutz 1989, Richins 2000, see also the essay by Wilkie) This enhances our irrelevance to the applied constituency we serve and other disciplines because these underresearched domains address some of the more relevant, interesting, and difficult issues

Do you think like me? Fifth, categorization by method leads to less intellectual stimulation because articles are reviewed by like-minded researchers who share a common methodological perspective rather than by those whose different perspectives might stimulate provocative thought

What do we really know? Sixth, categorization by method leads to a narrowing of knowledge among people who study the same thing Rather than becoming truly an "expert" on a given marketing phenomenon (e g , consumer choice), regardless of the publication in which an article appears (*Marketing Science*, *Organizational Behavior and Human Decision Processes*, *Journal of Consumer Research*) or of its focus (information processing, behavioral decision theory), we tend to read articles that are relevant only to a particular substantive interest that appears in certain journals This often leads to a limited understanding of what is collectively known about a substantive topic and a failure to cite work that extends beyond our narrow purview

Are you with me or against me? Seventh, at a cultural level, this trend toward categorization by method bifurcates the field into "camps," which often view one another as irrelevant or even adversarial For example, to hire a "modeler" to a faculty is viewed as offering little potential to enrich behaviorally oriented faculty members' academic research programs and/or the intellectual environment Rather than examining how someone different could offer unique and diverse perspectives that could enrich our understanding of a given marketing phenomenon, we view their presence, though potentially quite pleasant and enjoyable, as less intellectually relevant than someone whose methodological perspective resembles our own As evidence of these camps, consider the nature of academic conferences and the kinds of journals deemed appropriate for a given academic piece

Could you ever work with me? Finally, categorization by method has led researchers to view opportunities for joint research among those whose methodological perspectives differ from their own as limited

Roadblocks

If this trend toward categorization by method is indeed real, where does it come from? A potential cause is a limited understanding about the relative strengths and weaknesses of prevailing methodological paradigms (McGrath 1981) Depth training in a certain methodological perspective can lead to beliefs about the "right" way to do research and to disrespect and disregard research that is limited on the very characteristics we regard as critical to our own methodological paradigm (e g , internal versus external validity) This attitude may perpetuate some of the "meanness" in our field that Wilkie describes It may lead us to adopt rigid rules about what constitutes "valid" research (e g , homogeneous versus heterogeneous samples, single versus multiple informants), "important" research (e g , those that demonstrate interactions versus those that advance generalizations, see Leone and Schultz 1980), and research that advances theory versus practice and to use our expertise as reviewers to evaluate research more on fit with our own methodological approach than on its capacity to yield intellectual insights that help us understand a substantive domain Another potential source of the current status is fear of accepting something unknown or unfamiliar This problem is magnified when that unfamiliar thing is studied by people with whom we are not familiar

Pathways

Pathways to remedy the pitfalls of self- and other categorizations by methodology require instilling in doctoral students a more intellectually driven and a less methodologically driven approach to the pursuit of marketing phenomena Doctoral training should help students view a particular method not as a philosophy of how to do research but as exactly what it is—a method by which a phenomenon can be understood This requires helping students understand that all methodological approaches are flawed, none is better than the other, and intellectual advances can be made only by an approach that attempts to observe the bigger picture that emerges from diverse approaches This requires that methods are approached from the standpoint of creatively addressing an interesting question rather than as the "right way" to approach a problem We must let the dog wag the tail, not vice versa

Toward this end, we might consider organizing seminars by substantive areas (e g , materialism, advertising effects, branding) rather than by whether they take a behavioral, strategy, or quantitative approach Such seminars could be led by researchers whose different methodological orientations, yet shared substantive similarities, offer the capacity to spawn intellectual discussions A similar approach may be taken for academic conferences, which could be organized and attended by people who share a similar substantive interest In the review process, strong editors could seek broad-minded reviewers who appreciate research based on its substantive contribution rather than on its adherence to methodological paradigms

Pathways also include actively seeking out others whose perspective (quantitative versus behavioral) is different from our own (behavioral versus quantitative) yet who share a common substantive interest (Staelin 2005) Several articles in the discipline demonstrate the value of this perspective (e.g., blending the theoretical strengths of behavioral researchers with the modeling techniques of more quantitatively oriented researchers). Such alliances focus not on how we differ but on the substantive commonalities that join us. Efforts such as these would make people in the "other camp" seem less like strangers and more like others we can respect and with whom we can personally interact.

Another pathway involves the reformulation of recruiting of both doctoral students and faculty candidates. Too often, we categorize potential recruits in terms of their methodology (e.g., quantitative versus behavioral). Labeling people in this way alters the way we understand both them and their work and may blind us to potential substantive interests we might share. Finally, new pathways mean taking a more open-minded approach, learning more about how problems are approached from various perspectives, and appreciating research for what it is rather than for how similar it is in approach to our own.

Unleashing Potential[11]

Leigh McAlister

The potential for scholars to contribute to marketing thought and practice has never been greater. The MSI research priorities indicate that marketing practitioners have a pressing need to understand return on marketing spending, branding, new products and growth, nontraditional research tools and methods, customer management, and the role that marketing should play in an organization. When clear articulations of practitioners' problems are combined with an increasing number of well-trained marketing scholars, the result should be great strides forward in marketing thought and practice. Unfortunately, this is not necessarily the case. The very expansion of well-trained marketing scholars, which offers such promise, has led to a division of the field. As MacInnis notes in this collection of essays, the field is divided into "camps," each with its own definition of "good research," each viewing other camps as irrelevant or even adversarial. These divisions are exacerbated by the lack of expansion in the number of pages in marketing's "premier" publication outlets. When one camp is in control of a journal, articles from other camps are unlikely to be accepted, and regardless of which camp is in control, articles that address the kinds of important (and inherently messy) problems that make up the MSI research priorities are discouraged. In this essay, I draw on Ellison's (2002) qr theory of the academic review process to help explain the evolution of publication standards for premier marketing journals and to help motivate my call for the premier marketing journals (i.e., *JM*, *Journal of Marketing Research*, *Marketing Science*, and *Journal of Consumer Research*) to increase the number of pages they publish each year and to move away from "rigid rules about what constitutes 'valid' research" (see MacInnis, p. 15) toward review criteria that ask, Does this article provide new insight? Is this article "not wrong"?

I begin my elaboration of these ideas by first noting that I refer to *JM, Journal of Marketing Research, Marketing Science,* and *Journal of Consumer Research* as the "premier journals" in marketing because these are the journals that tend to be considered in marketing promotion and tenure decisions. Although there are several other excellent U.S.-based and non-U.S.-based marketing journals, promotion and tenure committees are familiar with only a few journals from other disciplines (Henderson, Ganesh, and Chandy 1990), and such committees use journal quality as a proxy for the quality of a candidate's publications because research quality is difficult to evaluate outside a person's discipline (Swanson 2004).

As do others before me, I take as a given that our field has a limited set of premier journals and turn my attention to the issues related to "research quality" in those journals. Massachusetts Institute of Technology economist Glen Ellison (2002) developed qr theory to describe the academic review process. According to Ellison's theory, academic articles are evaluated on two kinds of quality: q quality, which is related to the importance and interest of the main ideas in the article, and r quality, which is related to the execution of the article (e.g., exposition, links to the literature, robustness tests, extensions, methodology). In particular, Ellison posits a social norm for publication (α, z), where α is a value judgment parameter ($0 \leq \alpha \leq 1$) and z is an overall quality requirement. Articles are accepted for publication if $\alpha q + (1 - \alpha)r \geq z$. Assuming that q quality is determined by the initial work and that r quality is refined in the review process and assuming that reviewers continuously try to learn the current social norm for quality, the qr model predicts that, over time, r quality standards (i.e., execution) will receive increasing focus and q quality standards (i.e., related to the importance of the idea) will receive decreasing focus. This happens because reviewers, being human, overrate the r quality of their own research, and therefore, on the basis of reviews of their own work, they learn that the r quality emphasis is greater than they believed. Other forces that contribute to the increasing emphasis on r quality standards that Ellison mentions are reviewers' attempts to impress editors by requiring complex revisions and reviewers' competitiveness, which can lead reviewers to impose r quality standards above the norm to hold others back. Ellison's qr theory suggests that editors can reverse this process by accepting articles that reviewers have rejected, thereby providing reviewers with new information about the appropriate balance between q quality (ideas) and r quality (execution). However, Ellison notes that editors are reluctant to overrule reviewers because they rely on reviewers to evaluate articles, and they do not want to be viewed as "lowering standards."

The problem that Ellison's (2002) qr model outlines for all academic fields is even worse for the marketing field. In the period between 1980 and 1999, the annual number of articles published in premier marketing journals actually declined by 2 71 articles per year (Swanson 2004) [12] During this same time period, the supply of well-trained marketing scholars increased Furthermore, the pool of well-trained marketing scholars targeting premier journals is set to increase again as business schools in Europe and Asia adopt U S standards for faculty promotion (Montgomery 2005) As I have written elsewhere, I am concerned about the implications of a rapidly expanding number of well-trained scholars who are faced with a shrinking number of slots in premier journals (McAlister 2005) Even if the field was not divided into "camps" and even if the naturally evolving process of setting journal norms was not driving increased focus on execution and decreased focus on ideas, this combination of an increasing pool of scholars aspiring to a decreasing number of slots in premier journals would cause a narrowing of work that appears in those journals Think about the problem in terms of Type I and Type II error [13] Since the early 1980s, the supply of potential submissions to premier journals has gone up by an estimated factor of five,[14] but there is no reason to believe that the average quality of that supply has changed If we assume that premier journals have focused on the job of avoiding Type I error (i e , accepting articles that might be "wrong"), the greatly increased supply structurally determines an increase in Type II error (i e , rejecting papers that might be "right") [15]

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[11] I thank Ajay Kohli for noting the problem caused by the lack of expansion in our premier journals and an anonymous reviewer for directing me to Swanson (2004). That article, which builds on Ellison's (2002) article, helped reframe this essay.

However, our field *is* divided into camps Staelin (2005, p 149) tries to reunite those camps

> When reviewing others' work (e g , for a journal, for promotion, for hiring), screen for breadth and depth and show tolerance for approaches that differ from yours Do not rule something out just because it is not "sophisticated" Instead, try to determine whether the work has impact and the ability to modify the existing core of knowledge

In addition, our field *is* using review standards that favor execution over ideas Lehmann (2005, p 142) calls for restoring balance between execution and ideas

> [T]he pendulum may have swung too far in terms of black-belt methods when simple ones would suffice (and be easier to communicate) A consequence of this is that even the topic-oriented journals are increasingly insistent on the latest methods [There is a disturbing] tendency to avoid addressing important problems that are inherently messy

When I became Executive Director of MSI, Don Lehmann passed the responsibility for MSI's working paper series to me and suggested two simple criteria for paper acceptance Does the paper provide new insight? Is the paper "not wrong"? With the luxury of a working paper series that has essentially no page constraint, these criteria work quite well If the premier journals adopted similar acceptance criteria, we could rebalance the "execution versus idea" quality standard If our premier journals, which have begun to expand pages, would accelerate that trend and substantially expand the number of articles published each year, reviewers might find it easier to show the tolerance for different perspectives called for by Staelin in his essay I believe that doing these things would unleash the potential that resides in the growing body of well-trained marketing scholars By boosting the incentive for those scholars to produce important and interesting new ideas, we could accelerate the process of addressing those messy problems with which marketing practitioners struggle

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Revitalizing the Role of Marketing in Business Organizations: What Can Poor Academics Do to Help?

Jagmohan S. Raju

Many essays in this volume have convincingly argued that as a practice profession, marketing faces many challenges and dangers Several leading organizations have abolished, or have seriously considered abolishing, marketing departments, partly because academics and other thought leaders have convinced companies that "marketing is far too important to be left only to the marketing departments"[16] In a recent conference at Wharton, it was suggested that the life span of a CMO is relatively short, and many CMOs believe that one of the more serious challenges they face is justifying their own existence Marketing budgets are being cut in many corporations because it is difficult to justify the return on such expenditures Thus, marketing professionals no longer have a "seat at the table" (Webster, Malter, and Ganesan 2003) All in all, these are not good signs

Conversely, it appears that marketing as a discipline in the world of academics is not doing badly Indeed, a fairly strong case can be made that it has never been better Casual observation, discussions with colleagues from other universities, and anecdotal evidence lead me to the following conclusions

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[12] Swanson included only *JM*, *Journal of Marketing Research,* and *Journal of Consumer Research* in the set of premier marketing journals for his analysis I do not believe that adding statistics for *Marketing Science* to his data set would change his finding that the annual number of articles published in premier marketing journals has fallen steadily since the early 1980s

[13] I thank John Hauser and Don Morrison for suggesting that it is important to realize that the review process generates both Type I and Type II errors

[14] Swanson (2004) reports Association to Advance Collegiate Schools of Business statistics that show that the number of doctoral-level marketing faculty positions roughly doubled from approximately 1000 to 2000 between 1980 and 1999 However, only a small percentage of those 1000 doctoral-level marketing faculty in 1980 were well trained in the sense that their research skills prepared them to publish in premier journals Since 1980, a growing percentage of graduating doctoral students have those research skills Thus, although the total number of doctoral-level marketing faculty only doubled between 1980 and 1999, I estimate that the number of well-trained marketing professors has grown by at least a factor of five

[15] As a simple test of the increase in Type II error hypothesis, I pose this question Is there any person reading this essay who has not had a paper rejected by a premier journal for reasons that did not compromise the contribution of that paper?

[16] Although many have used similar phrases in different contexts, this particular phrase is assigned to Jack Trout

- In general, over the past 20 years, the average size of marketing departments has increased at major business schools
- More marketing courses are being taught, and furthermore, marketing courses are in great demand
- Marketing academics hold important leadership positions at many business schools Indeed, the list of marketing academics holding leadership positions (deans, deputy deans, vice deans, associate deans, and similar important administrative titles) has never been greater
- The number of manuscripts being submitted to major marketing journals is at an all-time high In the past few years, there have been some of the most dramatic increases Numbers reported at *Marketing Science*, *Journal of Marketing Research*, and *Management Science* suggest increases of up to 100% over the past five years
- The number of doctoral degrees granted in marketing worldwide is at healthy levels Furthermore, the demand for these graduates, though varying from one year to the next, remains quite strong

It appears that the life on one side of the street is quite different from the life on the other side It makes me wonder why the two are so different, but it may also explain why some academics are surprised (if not shocked) when they become aware of what is happening on the other side Should marketing academics care about what is happening on the other side? This essay attempts to argue that we should, and it provides some ideas as to what can be done

Why are marketing practitioners in trouble? It can be argued that marketing in the world of practice is floundering because practitioners do not fully use the tools that academics and other marketing thought leaders develop Therefore, they deserve to be in their current state However, there is the possibility that what we have given them is not good enough, or not potent enough, compared with what other disciplines receive from their thought leaders To determine which of the two explanations is the cause requires considerable work A more pragmatic approach is to reconcile that there is some truth to each of these reasons If there is some truth to the latter argument, academics may need to change Furthermore, no matter what the reason is for the "plight of the practitioners," to the extent that marketing is an applied discipline and one of the key end customers is the practitioner, we need to do what we can to make sure the customers are healthy It is with this objective I humbly make the following suggestions

Choosing Our Audiences

Most marketing academics live and thrive in a university setting Our colleagues are people from basic disciplines, and this lineage has done wonders for our field However, rather than focusing on pleasing economists or mathematicians,[17] we need to keep in mind that one of our key constituencies is the practitioners We are grateful when our work gets published in *Journal of Applied Mathematics*, but we need to be equally proud of studying problems that matter to practitioners, and we must provide solutions that they can implement Another issue worth thinking about is who the right audience is within a company In general, our audience in companies historically has been people engaged in marketing research I believe that we need to go further than this

Doing it Right Versus Doing the Right Thing

Our discipline pays great attention to the precision of arguments and the methodology used, but often, this can lead to incrementalism We should be more open to studying problems that matter, even if we need to make some limited compromises in terms of the precision with which we study these As my esteemed colleague Len Lodish (1974) suggested many years ago, approximate answers to important problems or issues are just as useful (if not more useful) than precise answers to wrong, well-defined, narrow problems This balance will also enable us to appeal to senior levels in the organization, our current audience is at a more junior level

Directing the Output of Our Doctoral Programs

Our doctoral programs are designed to train future academics, and this is a desirable motive because demographic changes suggest that there may be an acute shortage of marketing academics in the future However, we should encourage (and if not encourage, at least not discourage) doctoral students to enter the business world Many leading corporations are led by people who have doctoral degrees in chemistry, life sciences, and engineering Why not doctoral degrees in marketing? Corporations can gain if they are led by people who have an in-depth knowledge and an appreciation of how to understand customer needs and develop products, services, and programs that enable a company to satisfy such needs profitably Furthermore, it does not hurt if members of the audience understand our language, because they have been taught to do so

Valuing Consulting Activity

Virtually all academics in medical schools spend some time taking care of patients Indeed, in most cases, it is a part of their responsibility This not the case in business schools Do our "patients" not need any help, or are we incapable of helping them? Do we not care one way or the other? These are questions that we need to address directly

Teach What We Study and Discover in Our Research

We all want to teach what we study and discover in our research, and we try hard to do so However, the structure and design of our courses often limits our intentions A large majority of students take just one course in marketing, this course goes by different names in different schools, but it is often referred to as "Introduction to Marketing" In most schools, this course teaches the development of a marketing plan using some well-known and useful frameworks that have stood the test of time However, in comparing our approach with the first courses taught in other disciplines, there appears to be some differences The first course in finance does not address the development of a financial plan for a company. The first course in operations management also does not attempt to write an operations plan. I believe that we try to cover too much and therefore focus more on breadth than on depth, thus limiting our ability to link teaching with research. What if our first course was titled "Customer Analysis"? Such a course should put equal weight on behavioral and quantitative methods, and it could be cotaught if necessary.

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[17] The word "economist" or "mathematician" can be substituted by the word "psychologist" or "statistician" if the reader prefers

Measure the Value of Marketing Decision Aids and Models

Many other contributors have commented on measuring the value of marketing inputs. Our focus should be to measure not only the value of a particular marketing input (e.g., advertising) or a particular marketing asset (e.g., brand) but also the value of better methods and models we develop. For example, what is the value of better allocation of resources, such as sales force across territories and advertising across products.

Finally, we should be more comfortable with our own identity. Our field has made many important contributions to the business world, to society, and to science. We need to be more comfortable with who we are. We could even be more proud of who we are. If we have a good article that fits equally well in two outlets, we may want to consider publishing it in a marketing journal rather than in an economics journal. If we have two equally good doctoral students who we are considering hiring, one from psychology and the other from marketing, we may want to hire the student from marketing. If we are more comfortable and possibly more proud of our own identity, it will surely help us, and it may also rub on to the practitioners.

Readability and the Impact of Marketing

Ronald J. Bauerly, Don T. Johnson, & Mandeep Singh

If marketers want to communicate across specializations, across functional areas, and outside the marketing discipline and if marketing science is to influence practice, readability is a necessary, if not sufficient, condition to bridge these audiences. We examine the readability levels of *JM* over its history and find a dramatic decline in the 1966–1971 period. We explore the reasons this occurred and offer suggestions for enhancing readability and thus the impact of marketing.

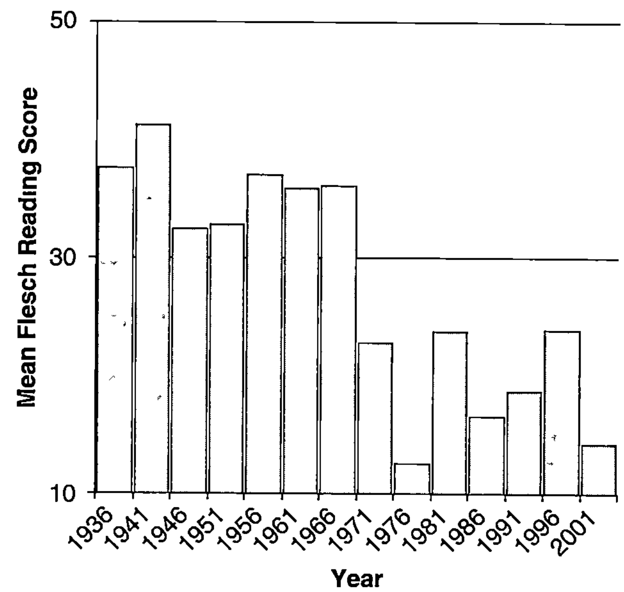
JM's *Readability 1936–2001*

Klare (1963, p. 1) defines readability as "the ease of understanding or comprehension due to the style of writing." To measure the readability of *JM*, we took samples from the introductions of the first five articles in the first issue of *JM* in each five-year period from 1936 to 2001. We measured the readability of the passages using the Flesch (1948) formula 206.835 – (.846 × [number of syllables per 100 words]) – (1.015 × [average number of words per sentence]). This commonly used and highly validated measure of readability is standard on word processing software. The longer the words and sentences, the more difficult the passage is presumed to be. A Flesch score of 100 represents the easiest readability, and 0 represents the most difficult readability. As we depict in Figure 2, readability levels dropped abruptly and significantly ($p < .01$) during the 1966–1971 period and fell into the "very difficult to read" range thereafter. The Flesch formula is just one measure of readability, but Severin and Tankard (1992) find that better Flesch scores lead to better reader comprehension.

From Where Does Difficult Reading Come?

We believe that difficult reading stems from a confluence of factors. Benson (2004) notes the ten-year period following the Carnegie (Pierson 1959) and Ford (Gordon and Howell 1959) Foundation reports as a time of radical change in business education. Benson reports that, on average, a new doctoral school in business was opened every 73 days during that decade and that faculty positions were filled with properly degreed professors. Business degrees were refocused from training workers to training managers, business colleges responded to demands for rigorous research and theory development. Since that time, the evolution of marketing thought, ideas, and issues has increased the complexity of the discipline, and specializations have caused a widening separation among subareas of the discipline. This specialization has also been associated with a proliferation of publication outlets based on various target audiences.

FIGURE 2
JM's Readability (1936–2001)



Notes: The Flesch readability test can be used to classify documents as having different levels of readability. The "very difficult" category is the classification for any document that scores lower than 30 on the Flesch scale.

Another factor affecting the level of readability is the authors themselves Most authors are trained in doctoral programs devoted more to the development of research skills than to the development of writing skills New professors learn through the interactive research process that writing skills are given limited attention Professors read published articles, and to increase their chances of being published, they mimic what they read

Could reviewers be unwittingly contributing to the belief that difficult writing increases the likelihood of publication? In his seminal article about journal readability, Armstrong (1980) finds some support for the proposition that high-prestige publications are expected to have low readability Armstrong rewrote passages from articles in ten highly ranked management journals to be more readable and then asked groups of faculty participants to read the different versions Participants rated the less readable versions as being of better quality In a similar vein, Metoyer-Duran (1993) finds that articles accepted at *College & Research Libraries* had worse readability scores than rejected articles Such evidence is a disquieting reminder of the virulence of the difficult-to-read phenomenon

What contributed to the decline of readability in *JM*? In his examination of the literary history of *JM*, Kerin (1996) details the evolution of *JM* from a largely descriptive journal to a scholarly and professional one *Journal of Marketing* has witnessed dramatic stakeholder realignments over the years (see Table 2) Its editorial staff, editorial review board membership, and authors have all moved dramatically away from practitioners to academicians As a consequence, merely descriptive articles have been replaced with articles that make a meaningful scholarly contribution As Kerin (1996, p 9) notes, this was "determined, in large measure, by logic in argumentation and thoroughness in documentation in both qualitative and quantitative terms"

By the early 1970s, surveys of *JM* subscribers found that many subscribers had come to view the journal as too "academic" and lacking in "marketing applications" (Grether 1976) More recently, Crosier (2004) found that *JM* is not alone, readability is quite difficult in other major marketing journals as well As Staelin (2002) asserts, when articles are written in an academic style, the information must be diffused through other outlets before it is likely to be directly usable by practitioners

Suggestions for Improving Readability

Nothing less than a true commitment to improved readability is required We outline several worthwhile options There is evidence that the editing and review process improves readability (Roberts, Fletcher, and Fletcher 1994) Excellent advice on how to improve readability has been provided by editors (e g , Kover 2002, Mick 2005, Staelin 2002) Authors can also have their papers professionally edited before submission Some institutions already provide such services for their faculty either through in-house staff or by paying for external copy editors Major journals such as *JM* could assign readability management to an assistant editor whose focus would be to improve the readability of provisionally accepted papers The motivation for authors would be strong if only an improvement in readability stood between them and publication Doctoral programs could require a technical writing course with a commitment to helping students develop more readable writing styles We must train new scholars to recognize that good, readable writing defines good scholarship

In summary, this collection of invited essays concurs on a critical premise If marketing is to enjoy its central organizational role, we must collaborate across specialized silos within marketing (see the essay by MacInnis) and across functional and discipline-related areas (see the essay by Raju) and to conduct and disseminate research that is customized to the world markets (see the essay by Steenkamp) Furthermore, as this essay contends, if marketing science is to influence marketing practice, we must work toward making it not only relevant but also readable Readability provides a critical bridge among specialized silos, functional areas, global markets, and marketing practice We believe that the English language is a wonderful, flexible, supple tool, in the hands of an experienced and properly motivated writer, it should allow for the effective communication of complex ideas to readers

TABLE 2
***JM* Stakeholders**

		Academic		Practitioner	
	Year	Number	Percentage	Number	Percentage
Editorial staff	1966	2	25	6	75
	1971	6	75	2	25
	2001	4	100	0	0
Review board	1966	24	35	41	65
	1971	38	63	22	37
	2001	102	98	2	2
Contributing authors	1966	32	58	23	42
	1971	63	91	6	9
	2001	68	97	2	3

Influencing the Practice Through Big New Ideas

Richard Staelin

We all enter the academy believing that our efforts will have an impact. Some of us center our attention on teaching, aiming to diffuse our acquired knowledge to students who act as change agents, others view the creation of new ideas as the best way to modify the practice, and still others attempt to influence the practice through consulting. Yet it is not always clear that marketing academics have had their desired impact. Indeed, this is a recurring theme in all the essays of this issue. Bauerly, Johnston, and Singh worry that our current publications are not readable and therefore are less likely to affect the practice. MacInnis believes that the bifurcation of our profession leads to silos, and as a result, knowledge is lost across these different branches of our profession. She suggests that the people in different areas be open to other perspectives and appreciate research for what it is. Steenkamp also worries about silos. He argues that most of our theories are too U.S. centric, and as a consequence, we are not able to address important global issues. After detailing several of these issues, he calls for marketing scholars to become more international in their research. Kerin calls for marketing academics to broaden their interests so that they can address multifunctional and business-level issues rather than only marketing issues. This theme can also be found in Brown's essay. He believes that we need to expand our target market to managers in all parts of the firm and not only marketing managers. Wilkie believes that most marketing academics focus their attention on helping the firm and thus do not consider societal issues. He points to the possible negative impact that can result from this narrow focus. Raju conjectures that the demise of marketing departments in corporations is partly due to academics not providing practitioners with the correct tools and knowledge. He suggests that we interact more with practitioners and that we modify our core marketing course to provide deeper knowledge. McAlister is less concerned about knowledge generation and more concerned about the knowledge creators who do not have enough outlets for publishing their new findings. She calls for the journals to expand the number of pages published each year. Webster believes that we tend to tackle only part of the problem at any one time and that we need to encourage senior faculty to take on complex issues that simultaneously address tactics, strategy, and organization. Sheth and Sisodia summarize the views of 17 speakers by pointing out that marketing needs to reform. They believe that the field needs to regain the trust of customers, make better use of technology, broaden marketing's perspective, and learn from other disciplines.

Running throughout many of these essays is the need for academics not only to be aware of others' work but also to show tolerance and respect for others' work and to broaden their own perspective. Implicit is the assumption that marketing is a complex discipline that requires people to be open to many difference approaches and ideas, many of which may come from disciplines other than marketing, if our profession is to provide successful solutions. In addition, these essays imply that without this breadth and tolerance, our field will become insular and lose its relevance and impact. With this in mind, I discuss a few ways to broaden our scope of issues and tolerance for new ideas and thus positively influence the practice of marketing.

Big New Ideas

Our field has come a long way since the mid-1960s. Entire new fields have developed. Some of these fields have had a direct impact on the practice of marketing (e.g., the analysis of scanner data, brand equity studies), and others have had a much more indirect effect (e.g., analytic model building, the study of how consumers make decisions). In addition, many of the concepts developed within the field of marketing have migrated into other disciplines. Still, there is a growing perception that our field is closing in on itself and not having any impact on the practice. Wilkie refers to this as a "meanness" that has crept into our field. Raju believes that our field is searching for incremental ideas rather than big ideas. McAlister believes that we are rejecting manuscripts that are not wrong just because there is a page constraint. Using citations, Baumgartner and Pieters (2003) find that other disciplines rarely build on the knowledge developed in marketing journals. The question then becomes, What can be done to make sure our field progresses and broadens its influence?

Let me begin by addressing our journals. I agree with others that if we are to make strides in developing new knowledge, we must learn from others. One way to enhance this learning is for our leading marketing journals to publish articles that cover a wide range of topics and use multiple approaches. Such a view is consistent with the data provided by Baumgartner and Pieters (2003), who analyze the citations from 49 marketing journals. They find that the most influential marketing journals are those that have a broad span of influence, that is, such marketing journals publish articles that are cited by works published in a wide array of marketing journals. This leads me to suggest that at least the editors of our core set of journals should try to attract the best articles in our field, regardless of topic or method. It also leads me to suggest that the authors of such articles should emphasize the substantive or conceptual aspects of their work (versus the methods used) because these aspects tend to be of greatest interest to the largest group of readers.

Now, consider the creation of big ideas. We all teach our students that one of the best ways to learn is to experiment. Experimentation implies some unanticipated variance. This variation is useful because it enables a researcher to begin to understand the underlying forces that influence a particular situation and thus to improve the work. However, this unanticipated variance can also lead to some undesirable outcomes because for every positive draw, there is also a negative draw. Researchers (especially young researchers) tend to be risk averse. Because new ideas are also different ideas, many researchers shy away from looking for the unexpected This is particularly evident in the selection of potential research projects and in the review process (i e , in the input and output stages of research)

I certainly do not have the magic bullet to solve this problem, but I believe that it is possible to influence directly the generation and adoption of new ideas Consider two examples The first took place in the mid-1980s when MSI provided seed money to a group of researchers who were interested in how consumers actually used the products that firms sold to them (versus the standard paradigm at the time of helping the firm influence consumers to buy the product) Using a diverse set of new (at least to marketing) approaches—now referred to as interpretive research—these researchers traveled from coast to coast one summer in a Winnebago to observe product use (for a description of the trip, see Belk 2005) This resulted in several manuscripts, many of which were sent to *Journal of Consumer Research* for possible publication Because this type of research and the questions it asked were new to the field, there was much debate about the relevance of the topics and the appropriateness of this new field to marketing Many people advocated that the papers should not be published in *Journal of Consumer Research* However, the editor at the time, Rich Lutz, was supportive and guided these papers through the review process As a result, a whole new field of inquiry gained the visibility and legitimacy necessary to sustain its long-term viability

A second example of the use of seed money and an editor willing to support a budding new field is the case of customer relationship management (CRM) Approximately four years ago, Duke received funding from Teradata, a division of NCR, to foster CRM research and curriculum design Rather than using the money to fund internal operations, the Duke faculty decided to provide overall guidance and seed money to a large number of researchers throughout the world who were interested in studying different aspects of CRM Four years later, enough research had been generated that Ruth Bolton, as editor of the *JM*, decided to dedicate a significant number of journal pages to this one issue She appointed Bill Boulding and me to usher articles through the review process with the goal of establishing a cohesive body of research that could act as a foundation for further exploration

These two examples indicate that the field is still open to new ideas However, in both cases, it took strong leadership to ensure that ideas "saw the light of the day" Because I was part of the review process for the CRM issue, I can safely note that many of the articles would not have been published if the editor (and consulting editors) took only the advice of the reviewers My conversations with Rich Lutz confirmed that he also played a major role in ensuring that the initial interpretive research papers made it through the review process In both cases, the editors were willing to experiment, knowing full well that they could be accepting a paper that would not meet the market test for impact

Editors are not the only people who need to foster new ideas Senior faculty across our discipline must take it on themselves to facilitate new ideas and approaches This is certainly the major theme of Webster's essay when he calls for integrative research However, it goes beyond this The idea of facilitating new ideas also extends to the establishment of centers that act as umbrellas for a diverse set of scholars and that address major substantive issues Often, these issues cut across functional lines and require collaborative research The process of facilitating big new ideas also pertains to those asked to evaluate others' work for possible publication and during the promotion and tenure process Here, emphasis should be given to the generation of big ideas and approaches versus technical sophistication or the number of publications Reviewers need to look for the good in a paper rather than view their task as finding the bad The same issues apply to teaching We should quickly diffuse new ideas into the classroom and tie these ideas to other areas of business, and we need people to step up and develop new ways to deliver our knowledge to the practicing managers

Finally, there is the issue of doctoral training We must prepare these new scholars to have deep knowledge in a particular area of marketing However, we also need to ensure that they have enough understanding of the diverse approaches found in our field that they respect others' work Moreover, if this new breed of marketing academics is to make an impact, they will need to understand how our field is integrated into the broader discipline of business Without this respect and this broader knowledge, there is less chance that they will be able to solve the next set of big problems facing our profession

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Do Satisfied Customers Buy More? Examining Moderating Influences in a Retailing Context

In this research, the authors propose that the relationship between satisfaction and repurchase behavior is moderated by customer, relational, and marketplace characteristics They further hypothesize that the moderating effects emerge if repurchase is measured as objective behavior but not if it is measured as repurchase intentions To test for systematic differences in effects, the authors estimate identical models using both longitudinal repurchase measures and survey measures as the dependent variable The results suggest that the relationship between customer satisfaction and repurchase behavior is contingent on the moderating effects of convenience, competitive intensity, customer involvement, and household income As the authors predicted, the results are significantly different for self-reported repurchase intentions and objective repurchase behavior The conceptual framework and empirical findings reinforce the importance of moderating influences and offer new insights that enhance the understanding of what drives repurchase behavior

Marketing literature consistently identifies customer satisfaction as a key antecedent to loyalty and repurchase, but current knowledge fails to explain fully the prevalence of satisfied customers who defect and dissatisfied customers who do not (Bendapudi and Berry 1997, Ganesh, Arnold, and Reynolds 2000, Jones and Sasser 1995, Keaveney 1995) Although prior research points to several variables that may moderate the satisfaction–repurchase relationship, empirical results are equivocal and difficult to reconcile

Many empirical studies examining direct and moderated satisfaction–repurchase effects measure repurchase intentions rather than objective repurchase behavior Studies can produce erroneous inferences if there are significant differences between intentions and subsequent behavior (Bolton 1998, Kamakura et al 2002, Mittal and Kamakura 2001, Morwitz, Steckel, and Gupta 1997) or if common method variance inflates estimates of the association between self-reported satisfaction and intentions (Bolton 1998, Gruen, Summers, and Acito 2000, Morwitz and Schmittlein 1992) Satisfaction levels at which customers report a positive intent can differ considerably from those at which customers engage in the corresponding behavior (Mittal and Kamakura 2001) Therefore, additional research is necessary that explicitly examines the extent to which results converge when using repurchase intentions versus objective repurchase behavior as the dependent measure

In response to calls for deeper insight into factors that may moderate the satisfaction–repurchase relationship (e g , Bolton, Lemon, and Verhoef 2004), we propose a conceptual framework that explains why two customers with the same (different) levels of satisfaction engage in different (the same) patterns of repurchase behavior We use consumer resource allocation theory to support our prediction that, after we control for main effects established in prior research (Anderson and Sullivan 1993, Bolton 1998, Boulding et al 1993, Rust, Zahorik, and Keiningham 1995), customer, relational, and marketplace characteristics moderate the relationship between satisfaction and repurchase behavior but do not moderate the relationship between satisfaction and repurchase intentions For example, convenience (a marketplace characteristic) conserves customers' time and effort and thereby facilitates a satisfied customer's ability to fulfill his or her intent

We test the conceptual framework in an understudied retail context that is characterized by low switching costs and comparison shopping behavior This context is noteworthy because no known research has examined differences in intentions and objective repatronage behavior in a retail shopping category marked by moderate repurchase frequency Research suggests that the predictive validity of repurchase intentions varies widely from frequently purchased convenience goods to infrequently purchased durables (e g , Chandon, Morwitz, and Reinartz 2005) In addition, the satisfaction–repurchase relationship can differ significantly between contractual services and discrete, recurring purchases (Lemon, White, and Winer 2002, Reinartz and Kumar 2003), for which switching costs are lower and customers typically are not obligated to give all their business to any one firm (e g , Rust, Lemon, and Zeit-

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haml 2004) Thus, our research extends current knowledge by capturing the complexity of the satisfaction–repurchase relationship in a context marked by discrete recurring transactions

Conceptualizing a Moderated Satisfaction–Repurchase Behavior Relationship

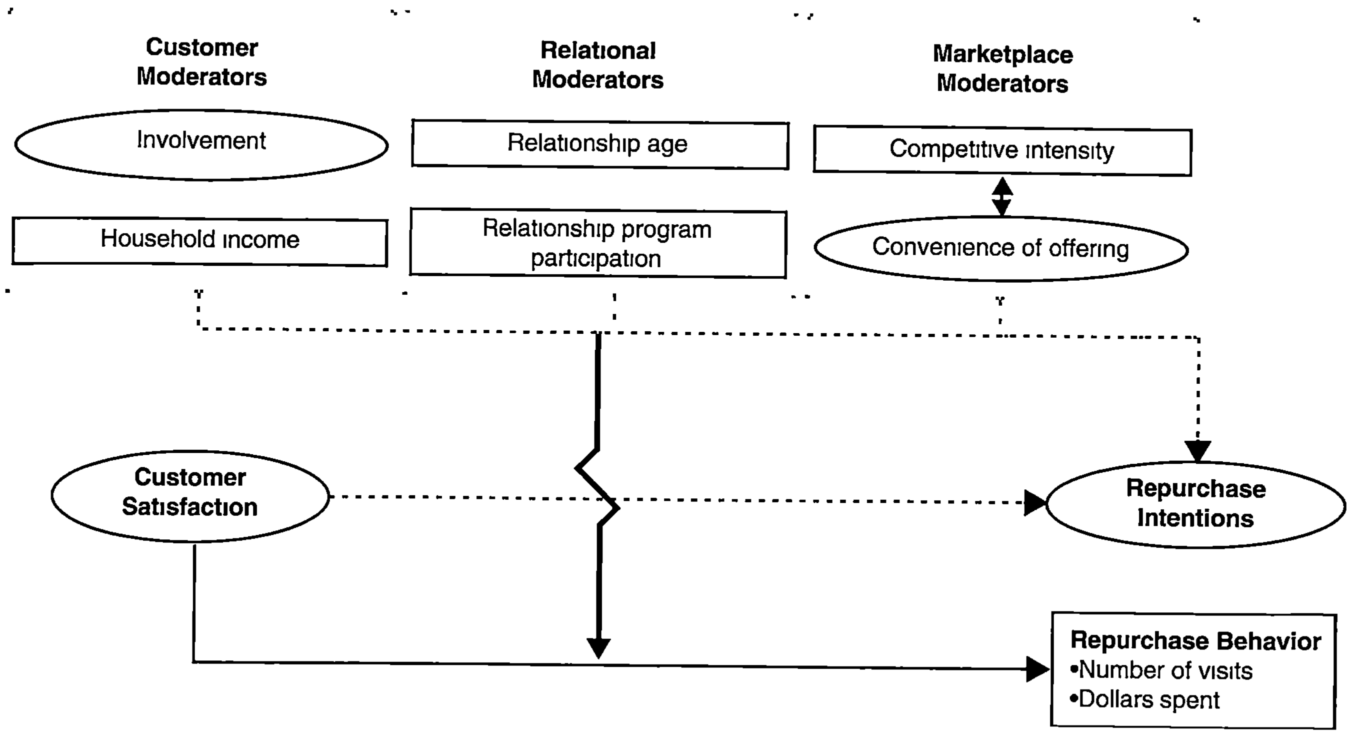
In Figure 1, we present a conceptual framework that proposes satisfaction and customer, relational, and marketplace characteristics as antecedents to repurchase intentions and behavior We conceptualize customer satisfaction as a cumulative, global evaluation based on experience with a firm over time (Homburg, Koschate, and Hoyer 2005) Repurchase intentions represent the customer's self-reported likelihood of engaging in future repurchase behavior, whereas repurchase behavior is the objectively observed level of repurchase activity The default expectation is that satisfaction positively influences both repurchase intentions and behavior, and we offer no formal hypothesis for this well-established relationship

The dotted lines in Figure 1 capture direct relationships that have been previously established in the literature (e g , Beatty and Smith 1987, Bolton, Kannan, and Bramlett 2000, Rust, Lemon, and Zeithaml 2004, Soberon-Ferrer and Dardis 1991) In the sections that follow, we provide brief reviews of the relevant literature for these direct effects, but we do not offer formal hypotheses for them Instead, we focus on the moderating effects depicted by the solid lines in Figure 1 Specifically, we predict that customer, relational, and marketplace characteristics moderate the relationship between satisfaction and objective repurchase behavior after we explicitly control for their direct (i e , main) effects Moreover, we believe that these variables do not moderate the relationship between satisfaction and repurchase intentions after we control for direct effects

For conceptual, methodological, and empirical reasons, we believe that customer, relational, and marketplace characteristics moderate the effect of satisfaction on objective repurchase behavior but not on repurchase intentions First, consumer resource allocation theory suggests that repurchase behavior reflects intervening contingencies that measures of repurchase intentions do not Consumers allocate a variety of resources to purchase decisions (Batshell 1980, Roberts and Dant 1991, Zeithaml 1988), including money (Marmorstein, Grewal, and Fishe 1992), time and effort (Becker 1965, Feldman and Hornik 1981, Jacoby, Szybillo, and Berning 1976), motivation, opportunity, and cognitive ability (e g , MacInnis and Jaworski 1989, MacInnis, Moorman, and Jaworski 1991, Peracchio and Meyers-Levy 1997) One stream of research depicts consumers as cognitive misers (e g , Shugan 1980) who lack the motivation and cognitive ability to incorporate intervening contingencies into their predicted repurchase probabilities Because consumers are not motivated to consider simple intervening characteristics (e g , how different levels of income might facilitate or constrain future repurchase activity) or capable of foreseeing complex intervening factors (e g , competitive interactions among firms), they routinely provide inaccurate

FIGURE 1

A Framework for Examining Moderators of the Relationship Between Customer Satisfaction and Repurchase



predictions of their future behavior (Kahneman and Snell 1992, Morwitz 1997, Morwitz, Steckel, and Gupta 1997) Thus, consumer resource allocation theory explains why people fail to consider intervening contingency effects in predicting their future behavior and predicts subsequent differences in their motivation and capability to engage in repurchase behavior

Second, from a methodological perspective, we expect systematic differences in the measurement properties of repurchase intentions and behavior Because intentions measures typically use five- or seven-point scales, information lost as a result of range restrictions and coarseness can attenuate researchers' ability to detect significant interaction effects that truly exist in the population (Russell and Bobko 1992) Range restriction occurs when information is lost because the highest or lowest point on the scale does not accurately capture extreme variations in the construct of interest Similarly, coarseness refers to information that is lost when one-point scale variations do not accurately capture within-range variation in the construct of interest Range-restricted and coarse scales may capture direct linear relationships with other constructs, especially if the two measures share common method variance and response bias (Bolton 1998, Morwitz and Schmittlein 1992) Measurement theory suggests that intentions measures do not capture the nuanced, complex variations that are provided by objective repurchase behavior measures, even if respondents could make accurate predictions

Finally, prior empirical research demonstrates that the conversion of intent into repurchase is moderated by various factors, including the type of product (Jamieson and Bass 1989, Kalwani and Silk 1982, Young, DeSarbo, and Morwitz 1998), demographics (Morwitz and Schmittlein 1992), experience (Bentler and Speckart 1979, Morwitz and Schmittlein 1992), and time lapse (Chandon, Morwitz, and Reinartz 2005, Mittal and Kamakura 2001, Young, DeSarbo, and Morwitz 1998) Studies that Chandon, Morwitz, and Reinartz (2005) conducted suggest that consumers provide relatively more accurate predictions of frequent, routine purchase decisions, such as those involving grocery items, than of infrequent, complex purchase decisions, such as those involving computers or automobiles We attribute this lower accuracy in the prediction of infrequent, complex purchase decisions to unforeseen contingency effects that emerge between intentions measurement and subsequent repurchase (Kalwani and Silk 1982)

In the following section, we rely on this conceptual, methodological, and empirical evidence to develop specific hypotheses that build on prior research that has examined moderators of the satisfaction–repurchase relationship In Table 1, we summarize the studies that support moderating effects of various customer, relational, and marketplace

TABLE 1
Moderators of the Association Between Satisfaction and Repurchase

Study	Dependent Variable(s) Context and Design	Customer Characteristics	Relational Characteristics	Marketplace Characteristics
Bolton (1998)	Relationship Duration (OM) Telecommunications Longitudinal Contractual service		Length of experience (+)	
Bowman and Narayandas (2001)	Share of Category Requirements (SR) Consumer package goods Cross-sectional Noncontractual goods	Heavy user (+)	Loyalty (+)	
Bowman and Narayandas (2004)	Share of Customer Wallet (SR) Processed metal Longitudinal Noncontractual industrial goods	Size (–)	Account management tenure (+)	Satisfaction with competitor (+)
Burnham, Frels, and Mahajan (2003)	Intention to Stay with Provider (SR) Credit card and telephone service Cross-sectional Contractual service		Relational switching costs (n s)	Procedural switching costs (n s) Financial switching costs (n s)
Capraro, Broniarczyk, and Srivastava (2003)	Defection/Repurchase (SR) Health insurance Longitudinal Contractual service	Objective knowledge (n s) Subjective knowledge (n s)		
Garbarino and Johnson (1999)	Future Intentions (SR) Professional theater Cross-sectional Contractual and noncontractual service		Relational orientation (–)	

TABLE 1
Continued

Study	Dependent Variable(s) Context and Design	Customer Characteristics	Relational Characteristics	Marketplace Characteristics
Homburg and Giering (2001)	a Recommendation Intentions (SR) b Brand Repurchase Intentions (SR) c Dealer Repurchase Intentions (SR) Auto manufacturer/dealer Cross-sectional Contractual goods and services	Income SP (– a, b, c) SSP (+ a, b) Involvement SSP (– b) Gender SP (+m c) SSP (+f b) Age SP (+ a, b, c) SSP (– b)	Variety seeking SP (– a, b, c)	
Jones, Mothersbaugh, and Beatty (2000)	Repurchase Intentions (SR) Banking and hair salon Cross-sectional Contractual and noncontractual services		Interpersonal relationships (–)	Switching costs (–) Attractiveness of alternatives (+)
Magi (2003)	a Share of Purchase (SR) b Share of Visits (SR) Grocery stores Longitudinal Noncontractual consumption goods	Economic orientation (– a, n s b) Personalizing orientation (– a, b) Apathetic shopping orientation (n s a, b) Age (n s a, b) Purchase volume (+ a, n s b)		
Mittal and Kamakura (2001)	Repurchase Behavior (OM) Automobile manufacturer Longitudinal Contractual durable goods	Sex (+) Education (+) Marital status (n s) Age (+) Children (+)		Urban versus suburban (n s)
Verhoef (2003)	a Customer Retention (OM) b Customer Share Development (OM) Insurance Longitudinal Contractual service		Relationship age (+ a, n s b)	
Verhoef, Franses, and Hoekstra (2002)	a Customer Referrals (SR) b Number of Services Purchased (OM) Insurance Cross-sectional and longitudinal Contractual service		Relationship age (n s a, + b)	
Current Study	Repurchase Intentions (SR), Repurchase Visits (OM), and Spending (OM) Apparel and home furnishings Cross-sectional and longitudinal Noncontractual fashion goods	Involvement Household income	Relationship age Relationship program participation	Competitive intensity Convenience of offering

Notes +/– indicates that the effect of satisfaction on the dependent variable increases/decreases as the moderating variable increases/decreases, n s = not significant, SR = self-reported measure provided by respondent, OM = objective measure taken from secondary source, SP = satisfaction with the product, and SSP = satisfaction with the sales process characteristics. We report the results only for moderating effects; that is, we do not include results for main effects. A review of Table 1 shows that our study makes unique contributions by testing formerly unexamined moderating variables, linking survey data to self-reported intentions and objective, longitudinal repurchase behavior, and investigating a previously understudied context marked by low exit barriers.

Development of Hypotheses

The conceptual framework we present in Figure 1 proposes three categories of moderators that operate at different levels. Customer characteristics explain variations in the satisfaction–repurchase relationship due to individual differences, relational characteristics capture customers' investments in building or formalizing relationships with a specific firm, and marketplace characteristics account for variations related to market-level competition. For each category of moderator, we propose and subsequently test two specific moderating variables. In each case, we predict an interaction effect after we control for main effects.

Customer Characteristics

Customer characteristics explain variations in peoples' purchase levels for an entire purchase category. We expect that customer-level variables have a direct influence on repurchase intentions and behavior and moderate the relationship between satisfaction and repurchase behavior. We examine involvement, a motivational resource, and household income, a monetary resource. Because both moderators are closely linked to key resources, they are likely to be among the most significant customer-level influences.

Involvement. Involvement is the importance of the purchase category to the consumer and is based on the consumer's inherent needs, values, and interests (Mittal 1995). From a resource perspective, highly involved customers allocate more time and effort to search (Beatty and Smith 1987; Bloch, Sherrell, and Ridgway 1986; Maheswaran and Meyers-Levy 1990) and report higher levels of repatronage intentions (Wakefield and Baker 1998), which suggests a positive direct link between involvement and repurchase intentions and behavior. We acknowledge an alternative view that involvement could negatively affect repurchase intentions. More involved consumers may be more likely to search and potentially identify more preferred alternatives in the market, regardless of their level of satisfaction.

We also expect that involvement enhances the positive effect of satisfaction on actual repurchase behavior but not on repurchase intentions. Involved shoppers should allocate more time, effort, and money to retailers that provide exceptional satisfaction. They should also be more discriminating among offerings and more responsive and committed to superior offerings (Beatty, Kahle, and Homer 1988). This positive moderating effect would extend to repurchase intentions if involved customers accurately incorporated these complex effects into their predictions, but because we do not expect such incorporation to occur, we formally hypothesize the following:

> H_1: Involvement (a) moderates (enhances) the positive relationship between customer satisfaction and objective repurchase behavior but (b) does not moderate the positive relationship between customer satisfaction and repurchase intentions.

Household income. Household income is positively related to consumers' routine expenditures for multiple types of services (Nichols and Fox 1983; Soberon-Ferrer and Dardis 1991), loyalty among online shoppers (Keaveney and Parthasarathy 2001), and profitable lifetime customer duration (Reinartz and Kumar 2000). On the basis of these findings, we expect that household income has a positive influence on repurchase intentions and behavior.

Household income should also intensify the relationship between satisfaction and repurchase behavior. The conversion of intent into purchase varies across groups that differ in their ability to fulfill that intent (Morwitz and Schmittlein 1992), and lower-income customers may be constrained in their purchases. Because higher-income customers place a higher value on time and are more discriminating in how they allocate their time (Marmorstein, Grewal, and Fishe 1992), they should visit and spend less at retailers that offer low satisfaction and more at retailers that offer high satisfaction. This positive moderating effect would extend to intentions only if higher- and lower-income customers accurately incorporated the enabling and constraining effect of income. Because we do not expect such incorporation to occur, we formally hypothesize the following:

> H_2: Household income (a) moderates (enhances) the positive relationship between customer satisfaction and objective repurchase behavior but (b) does not moderate the positive relationship between customer satisfaction and repurchase intentions.

Relational Characteristics

Relational characteristics represent formal and informal bonds between the firm and its customers; relational bonds can create social and financial switching barriers that provide firms with an advantage insulated from competitor actions. Although relational moderators have been examined primarily in the context of contractual services, relational strategies designed to encourage discrete, ongoing repurchase are widespread. Proposed relational moderators include relationship age with the focal firm and participation in the firm's relationship program.

Relationship age. Prior experience influences intent, repurchase behavior (Anderson, Fornell, and Lehmann 1994; Morwitz and Schmittlein 1992), and loyalty (Ganesh, Arnold, and Reynolds 2000). Relationship age is positively related to customer profitability (Reinartz and Kumar 2000, 2003), retention (Bolton 1998), number of services purchased (Verhoef, Franses, and Hoekstra 2002), continued museum membership (Bhattacharya 1998; Bhattacharya, Rao, and Glynn 1995), and (we expect) repurchase intentions and behavior.

Empirical results indicate that length of prior experience enhances the positive association between satisfaction and subsequent relationship duration (Bolton 1998) and that relationship age enhances the link between satisfaction and retention and the number of services purchased (Verhoef 2003, Verhoef, Franses, and Hoekstra 2002) This effect would extend to intentions only if relational customers accurately incorporated the moderating effect of prior relational investments, but because we do not expect such incorporation to occur, we hypothesize the following

> H_3 Relationship age (a) moderates (enhances) the positive relationship between customer satisfaction and objective repurchase behavior but (b) does not moderate the positive relationship between customer satisfaction and repurchase intentions

Relationship program participation Relationship programs represent company initiatives that target individual customers who agree to exchanges that may be complementary or ancillary to their purchase transactions These programs promote retention by enhancing customers' perceptions of the relationship investment and increasing their trust and commitment (De Wulf, Odekerken-Schroder, and Iacobucci 2001, Rust, Lemon, and Zeithaml 2004) Participants may receive personalized communications that keep them informed of new offerings or preferential treatment and rewards for past loyalty Empirical findings indicate that relationship program participation has positive direct effects on intentions, usage levels, retention, and customer share development (Bolton, Kannan, and Bramlett 2000, Garbarino and Johnson 1999, Verhoef 2003)

We also expect that relationship program participation enhances the positive effect of satisfaction on repurchase behavior Customers enter relationships in part to reduce the time and effort required for purchase decisions (Bhattacharya and Bolton 2000, Sheth and Parvatiyar 1995), which suggests that relationship program participants should be less inclined to shop around and more inclined to allocate purchases to relational providers that offer superior satisfaction This positive moderating effect would extend to intentions only if customers accurately incorporated the moderating effect of relational program participation Because we do not expect such incorporation to occur, we hypothesize the following

> H_4 Relationship program participation (a) moderates (enhances) the positive relationship between customer satisfaction and objective repurchase behavior but (b) does not moderate the positive relationship between customer satisfaction and repurchase intentions

Marketplace Characteristics

Marketplace moderators feature interactions among customers, the focal firm, and competing firms For example, intense competition that spurs price promotions may increase switching behavior and overall purchase volume, or new firms entering the marketplace may steal customers and market share from entrenched competitors We examine the convenience of the focal firm's offering and its interaction with competitive intensity in the marketplace

Convenience Overall convenience is a second-order construct that consists of five types of time and effort costs involved in service experiences (Berry, Seiders, and Grewal 2002) Empirical findings indicate that convenience is significantly related to customer satisfaction and behavioral intentions (Andaleeb and Basu 1994), consumer switching behavior (Keaveney 1995), and customer perceptions and retention (Rust, Lemon, and Zeithaml 2004)

In addition to its direct effects, we propose that convenience enhances the positive effect of satisfaction on repurchase behavior but not on intentions From a resource allocation perspective, a convenient offering conserves customers' time and effort and thereby facilitates a satisfied customer's ability to fulfill his or her intent In this capacity, convenience functions less as an input to evaluation and more as an ongoing barrier that encourages or discourages repurchase behavior This is likely to be particularly relevant for repatronage behavior, for which access to geographically based retailers or other service firms is a major decision factor, and can produce both planned and unplanned trade-offs between degree of convenience and level of satisfaction Thus

> H_5 Convenience (a) moderates (enhances) the positive relationship between customer satisfaction and objective repurchase behavior but (b) does not moderate the positive relationship between customer satisfaction and repurchase intentions

Competitive intensity We define competitive intensity as the level of direct competition that the focal firm faces within its immediate business domain Competitive intensity can attenuate competitive advantage and influence repurchase behavior over time because competition erodes customers' perceptions of differential advantage along unsustainable dimensions For example, convenience represents a characteristic that can be readily replicated in many marketplaces, thus, the relative advantage it offers when competition is low is eroded as competition intensifies

We illustrate the expected interaction using an anecdote about gas station competition and repurchase A consumer routinely travels three distinct routes along which he or she makes repurchase decisions On the first route, there is only one gas station, the convenience of the offering may be paramount, so the traveler repurchases at this gas station, especially if he or she is satisfied with the service station but, when necessary, even if he or she is not On the second route, there are two gas stations on opposite sides of the road, both of which are open with no waiting line, convenience may lead the traveler to repurchase at whichever station is on the side of the road in the direction he or she is traveling Alternatively, one of the competitors may deliver higher satisfaction on another dimension, which would lead the traveler to cross the road if necessary to repurchase from the same gas station On the third route, there are four gas stations located on the four corners of an intersection, each is open without a waiting line Convenience may continue to play a key role (e g , stop at the first one on the same side of the road that does not have a line), but an alternative decision rule could lead to convenience becoming irrelevant

This anecdote suggests a three-way interaction among satisfaction, convenience, and competitive intensity When competitive intensity is low, convenience prevents defection and facilitates repurchase behavior, thus exerting both a direct and a moderating influence on repurchase. However, as competitive intensity increases, convenience plays a less important role in the repurchase decision. It is not clear whether competitive intensity will have a significant direct effect, which would depend on whether customers perceive shopping synergies associated with a large number of competitors in a single destination, such as at a regional shopping mall. We do not expect that customers will incorporate these complex interactions into repurchase intentions, which suggests the following hypothesis:

> H_6: Competitive intensity (a) moderates the relationships among customer satisfaction, convenience, and repurchase behavior such that convenience enhances the relationship between satisfaction and repurchase behavior when competitive intensity is low but not when competitive intensity is high but (b) does not moderate the relationship among customer satisfaction, convenience, and repurchase intentions.

Research Design and Empirical Results

To examine our hypotheses, we worked with a national specialty retail chain that sells its own brand of upscale women's apparel and home furnishings in approximately 100 North American locations. The company provided contact information for 3117 customers and offered a $20 coupon to customers who responded to the four-page questionnaire. The customer list included randomly selected names of customers who had purchased merchandise from any store during the 12 weeks before the generation of the list. Thus, the sampling frame represents current customers.

Contact information included names and addresses for all 3117 customers and e-mail addresses for 1150 customers who had joined the relationship program, which featured frequent e-mails announcing newly arrived merchandise and promotions. We sent e-mail messages to all 1150 e-mail addresses, inviting potential respondents to click through to an online survey. Of these 1150 addresses, 264 e-mails were returned as undeliverable, leaving an effective sampling frame of 886. After two weeks, we sent an additional e-mail to nonrespondents, offering them another chance to participate. We ultimately received 285 surveys, for an effective response rate of 32%. We eliminated 12 respondents who provided incomplete information from subsequent analyses, leaving a total of 276 usable responses.

We sent postal mail to the other 1967 names on the customer list. Of these, 28 were returned as undeliverable, leaving an effective sampling frame of 1939. After four weeks, we sent a follow-up letter and survey to the nonrespondents, offering them another chance to participate. A total of 721 people responded, for an effective response rate of 37%. Of these, 52 incomplete surveys were unusable, leaving a total of 669 usable responses. The 945 respondents to both surveys were primarily women (99%) between the ages of 35 and 54 years (66%) with at least some college education (96%) and an average household income exceeding $58,000.

Construct Measurement

We operationalized repurchase behavior using two measures from the company's records: the number of repurchase visits and the amount of repurchase spending during the 52 weeks after completion of the survey. The use of objective repurchase data for the year following the survey eliminates concerns of common method variance, simultaneity, or endogeneity. We log transformed the repurchase behavior measures to improve distribution normality.

Several independent measures were objective secondary data or single-item, self-reported measures. We measured household income as the median household income reported in the 2000 census for the respondent's zip code. Relationship age was a single-item measure (i.e., "How long have you been a customer?") Relationship program participation was a dichotomous variable indicating whether the customer had opted in to the company's e-mail program. To operationalize competitive intensity, we used Census Bureau Zip Code Business Patterns data that report the number of establishments competing in each North American Industry Classification System (NAIC, http:// censtats.census.gov/cbpnaic/cbpnaic.shtml), using the respondent's zip code; we included the total number of competitors in women's clothing (NAIC code 448120) and other home furnishings (NAIC code 442299).

We adapted multi-item scales to measure repurchase intentions (Parasuraman, Zeithaml, and Berry 1994), satisfaction (Voss, Parasuraman, and Grewal 1998), and involvement (Beatty and Talpade 1994). Because no comprehensive convenience scale existed, we followed standard procedures to develop scale items for each of the five convenience types (Berry, Seiders, and Grewal 2002). The multigroup confirmatory factor analysis that we report in the Appendix supports the reliability and consistency of the scales (Voss and Parasuraman 2003). We used mean scores for the latent constructs in subsequent regression analyses.

In Table 2, we present descriptive statistics and construct correlations for the variables of interest. Comparison of the means for the postal mail and e-mail samples indicates that relationship program participants are more involved, have lower relationship ages, and engage in more repurchase visits and spending. These mean differences raise questions as to whether there are differences in the structural relationships of interest across the two samples. We conducted an exploratory analysis to address this. Of the 15 possible structural differences across the three models (five for each model: repurchase visits, spending, and intentions), only one was significant at the $p < .05$ level; moreover, there was no increase in the adjusted R^2 for any of the models. These results reinforce the generalizability of the findings across the two samples.

Hypothesis Testing

To test the hypotheses, we ran a series of regression analyses to estimate identical models for repurchase intentions, visits, and spending. Preliminary analyses indicated that the hypotheses were supported by 12 of the 18 tests and that the interaction effects of relationship age (H_3) and relationship program participation (H_4) were not significant in any model. For reasons of parsimony, we reestimated the three

TABLE 2
Descriptive Statistics and Correlation Matrix for the Constructs of Interest

	Overall Mean (Standard Deviation): N = 945	Postal Mail Mean (Standard Deviation): N = 669	E-Mail Mean (Standard Deviation): N = 276	1	2	3	4	5	6	7	8	9
1 Satisfaction	4 34 (72)	4 36 (71)	4 29 (74)	1 0								
2 Involvement	4 03 (73)	3 99* (74)	4 14* (70)	27	1 0							
3 Household income	58,776 (20,254)	59,941* (20,500)	55,952* (19,394)	– 06	– 05	1 0						
4 Relationship age	3 13 (2 44)	3 39* (2 68)	2 50* (1 56)	01	10	06	1 0					
5 Relationship program participation	29 (45)	0 (0)	1 (0)	– 04	10	– 09	– 17	1 0				
6 Convenience	3 89 (54)	3 88 (53)	3 92 (55)	66	28	02	09	03	1 0			
7 Competitive intensity	7 45 (10 39)	7 59 (10 55)	7 12 (10 03)	– 01	– 03	03	01	– 02	00	1 0		
8 Repurchase intentions	4 31 (70)	4 29 (71)	4 36 (68)	53	48	– 06	03	04	47	00	1 0	
9 Repurchase visits	4 13 (9 62)	3 27* (9 03)	6 22* (10 65)	07	10	01	03	14	11	– 01	11	1 0
10 Repurchase spending	326 68 (1083 00)	237 97* (644 33)	541 72* (1718 80)	07	11	00	00	13	10	– 03	10	74

*Means are significantly different across groups ($p <$ 01), correlations ≥ | 07| are significant at $p <$ 05 (two-tailed test) models without these variables We present the nonstandardized coefficients and t-values for the reduced models in Table 3, in which we group the hypothesized interaction terms in the lower half to facilitate inferences about hypothesized effects Each model is significant ($p < 01$), but the explanatory power of the model with repurchase intentions as the dependent variable is much higher than those with repurchase visits or spending as the dependent variable This finding suggests that some of the explanatory power of the repurchase intentions model is due to shared method variance

The relatively low explanatory power of the equations with objective dependent measures raises some concern about omitted variable bias To address this concern, we reran the analyses and included lagged dependent measures (i e , purchase visits and spending for the previous year), which capture unobserved, systematic variation across respondents This lagged analysis produced no changes in the results for customer or market characteristics and a minor attenuation of the direct effects of relational characteristics, thus indicating that the lagged dependent variables partially mediate the effects of relationship age and relationship program participation These results suggest that omitted variable bias is not a significant concern

Repurchase behavior In the repurchase visits model, three of the four hypothesized interactions (income × satisfaction, convenience × satisfaction, and convenience × competition × satisfaction) are significant and in the expected direction These three results are replicated in the repurchase spending model, in which the fourth interaction term (involvement × satisfaction) is also significant and in the expected direction Thus, H_{1a} receives partial support, and H_{2a}, H_{5a}, and H_{6a} are fully supported in both analyses The graphs in Figure 2 facilitate interpretations of these results

With regard to H_{1a}, involvement moderates the satisfaction–repurchase spending link ($t = 2\ 22$, $p < 05$, effect size [ES] = 07) but not the satisfaction–repurchase visits link (Cohen 1988) As we show in Figure 2, Panel A, the relationship between satisfaction and repurchase spending is positive only when involvement is high, it is flat when involvement is low For H_{2a}, household income moderates the link between satisfaction and repurchase visits ($t = 3\ 12$, $p < 01$, ES = 10) and between satisfaction and repurchase spending ($t = 2\ 53$, $p < 01$, ES = 08) As we show in Figure 2, Panel B, the relationship between customer satisfaction and repurchase spending is not significant when household income is low, but it is significantly positive when household income is high Consistent with resource allocation theory, this result shows that highly satisfied, lower-income customers are constrained in their repurchase spending

In support of H_{5a}, the convenience × satisfaction term is significantly positive in both the repurchase visits ($t = 1\ 85$, $p < 05$, ES = 06) and the repurchase spending ($t = 1\ 73$, $p < 05$, ES = 06) models In support of H_{6a}, the three-way convenience × competition × satisfaction term is significantly negative in the two objective repurchase behavior analyses (repurchase visits $t = -2\ 17$, $p < 05$, ES = 07, repurchase spending $t = -2\ 44$, $p < 05$, ES = 08) To examine the nature of the interaction effect, we divided the overall sample into three (low, medium, and high) subgroups based on competitive intensity and reran the analysis The results indicate that the convenience × satisfaction term is significant only in the low-competition subgroup As we show in Figure 2, Panel C, the relationship between customer satisfaction and repurchase spending is not significant when convenience is low, but it is significantly positive when convenience is high

Repurchase intentions The significant, negative coefficient for the involvement × satisfaction interaction term is the only unexpected result for the repurchase intentions model As we show in Figure 2, Panel D, the relationship between satisfaction and repurchase intentions is more positive when involvement is low than when involvement is high, and repurchase intentions are nearly as strong for highly satisfied, low-involvement customers as for highly satisfied, high-involvement customers Combining the results from Figure 2, Panels A and D, offers additional insight Low-involvement customers overestimate the impact of increasing satisfaction on their subsequent repurchase behavior

Examining the Baseline Direct Effects

Although we did not hypothesize the baseline direct effects captured by the dotted lines in Figure 1, the results offer some inferences worth noting For the repurchase visits model, five of the six antecedents—involvement, relationship age, relationship program participation, convenience, and competition—have significant main effects Although the main effects of satisfaction and income are not significant, significant higher-order terms indicate that the direct effects are contingent The results for the repurchase spending model are largely similar to the repurchase visits model, although the main effects of convenience and competition are not significant, significant higher-order terms indicate that the direct effects are contingent These results offer general support for the baseline model depicted in Figure 1, in that all antecedents have a significant effect on repurchase visits and spending All main effect sizes are small (ES ≤ 11), with the exception of relationship program participation, which has the strongest effect size (ES = 29) with repurchase visits as the dependent variable

Only three antecedents have significant effects on repurchase intentions The main effect sizes are moderately large for involvement (ES = 40) and satisfaction (ES = 26) and are smaller for convenience (ES = 14) Household income, relationship age, relationship program participation, and competitive intensity have no significant effects Common method variance offers a plausible explanation for this pattern of results, all the independent variables that are self-reported measures using Likert scales are positively related to repurchase intentions, but the other measures are not In general, our findings, with some interesting exceptions, confirm the results of prior studies that report significant direct effects of the model's antecedents on both repurchase intentions and behavior

TABLE 3
Regression Analysis Results

	Independent Variables	Repurchase Visits		Repurchase Spending		Repurchase Intentions	
		Coefficient	t-Value	Coefficient	t-Value	Coefficient	t-Value
	Intercept	1 11**	(29 80)	5 88**	(202 99)	4 34**	(202 98)
	Satisfaction	04	(57)	06	(1 11)	30**	(8 24)
	Involvement	17**	(3 80)	12**	(3 55)	33**	(13 19)
	Household Income	01	(83)	− 00	(− 18)	− 01	(−1 02)
	Relationship age	04**	(3 22)	02*	(1 91)	− 00	(− 64)
	Relationship program participation	31**	(9 13)	21**	(7 79)	01	(63)
	Convenience	14*	(1 76)	08	(1 40)	20**	(4 42)
	Competition	01*	(1 79)	00	(1 23)	00	(64)
	Competition × satisfaction	− 00	(− 71)	− 00	(− 75)	− 00	(− 77)
	Competition × convenience	01	(1 06)	00	(57)	− 00	(− 56)
H_1	Involvement × satisfaction	06	(1 17)	**.09***	**(2.22)**	**−.07****	**(−2 40)**
H_2	Income × satisfaction	**07****	**(3.12)**	**.04****	**(2.53)**	01	(73)
H_5	Convenience × satisfaction	**12***	**(1.85)**	**.09***	**(1.73)**	− 06	(−1 59)
H_6	Convenience × competition × satisfaction	**− 01***	**(−2.17)**	**−.01****	**(−2.44)**	− 00	(− 85)
	Model F value (degrees of freedom = 13/931)	11 53**		9 14**		53 92**	
	Adjusted R^2	13**		10**		42**	

*$p < 05$

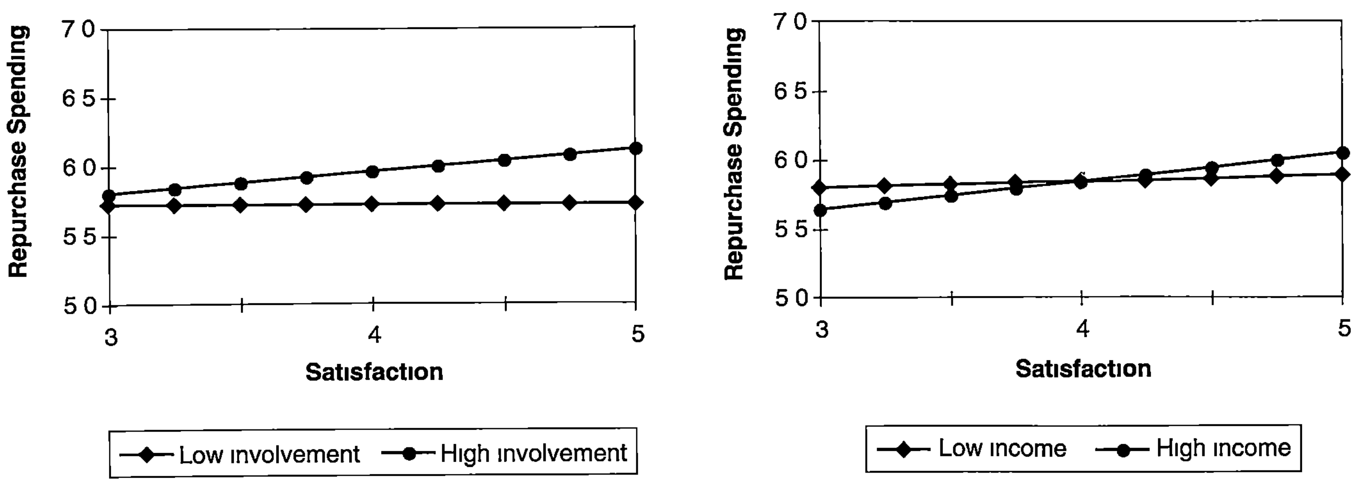
**$p < 01$

Notes We report nonstandardized regression coefficients with t-values in parentheses for each effect Significant hypothesized interaction effects are bolded for visual clarity

FIGURE 2
Significant Interaction Plots

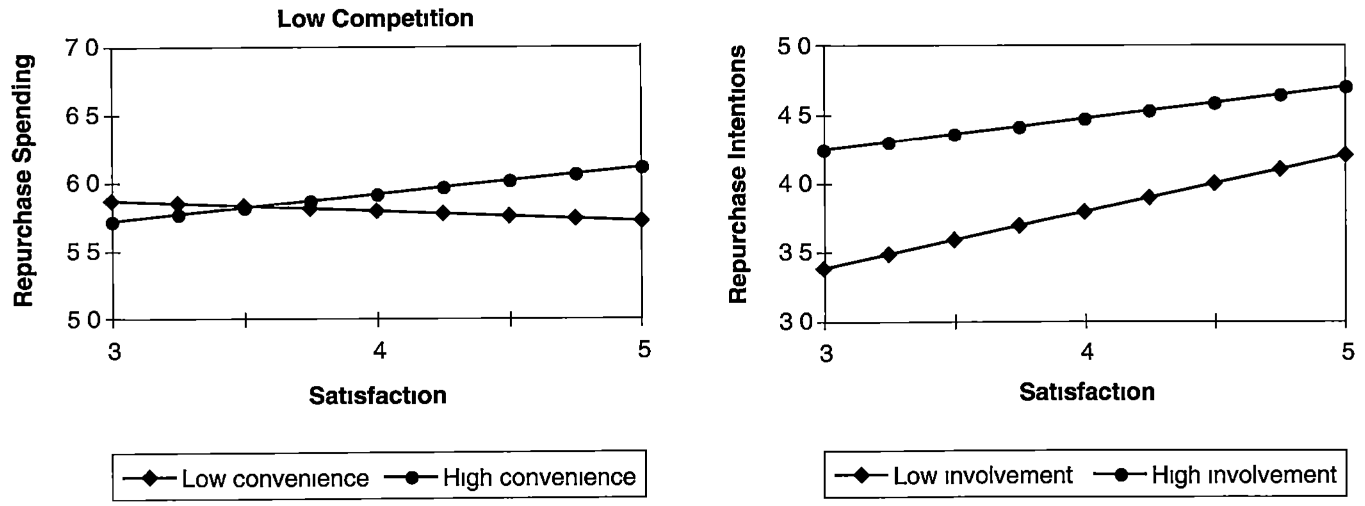
A. Plotting the Effect of Involvement and Satisfaction on Repurchase Spending[a]

B: Plotting the Effect of Income and Satisfaction on Repurchase Spending[a]



C. Plotting the Effect of Convenience and Satisfaction on Repurchase Spending when Competition Is Low[a]

D: Plotting the Effect of Involvement and Satisfaction on Repurchase Intentions



[a]The graphs understate the effect sizes in the repurchase spending panels because figures on the vertical axis are log natural transformations, so that 5 ≈ $148.41, 6 ≈ $403.43, and 7 ≈ $1,096.63.

Discussion

The marketing concept, which proposes that customer satisfaction should be the focal point of business activities, is based on the explicit assumption that satisfied customers repurchase more and therefore are more profitable. In questioning this fundamental assumption, we predicted that customer, relational, and marketplace characteristics would moderate the relationship between satisfaction and repurchase behavior but not repurchase intentions. In a specialty retailing context, we find that satisfaction has a strong positive effect on repurchase intentions but no direct effect on repurchase behavior, customer and marketplace characteristics play significant moderating roles, and relational factors have a positive direct influence on repurchase behavior but not intentions.

Consistent with our prediction, we find that inferences related to moderating effects vary dramatically across self-reported repurchase intentions and objective measures of repurchase behavior. Our results show the absence of significant moderating effects on the satisfaction–repurchase intentions relationship for five of the six interactions, but they show the presence of significant moderating effects on the satisfaction–repurchase behavior (visits and spending) relationship for 7 of the 12 interactions This pattern of results supports our argument—drawn from consumer resource allocation theory—that customers often fail to consider intervening contingency effects when they predict their own future behavior

These divergent findings, consistent with the modest correlations between intentions and objective visits and spending (see Table 2), again raise questions about the reliability of customers' self-reported repurchase intentions for testing conceptual models of repurchase behavior, including those that examine the role of moderating variables We summarize the hypotheses test results in Table 4

Moderating Effects on Repurchase Behavior and Intentions

Customer characteristics Our results add to a growing body of research that offers strong support for the moderating role of customer characteristics on repurchase behavior across a variety of contexts (see Table 1) As we expected, involved customers shop and spend more than do less involved customers The significant moderating effect on repurchase spending indicates that involved customers spend even more when their satisfaction is high (Figure 2, Panel A) The interaction effect is not significant for repurchase visits, which suggests that satisfaction has no linear effect on involved customers' repurchase frequency These active shoppers likely patronize a variety of competing stores within their evoked set, and delivering satisfaction to this customer group simply establishes a presence in that set Delivering superior satisfaction does not lead to increased repurchase frequency (i e , customers continue to shop around), but it does lead to significantly higher spending Unexpectedly, involvement has a negative moderating effect on repurchase intentions Figure 2, Panel D, suggests that when low-involvement customers perceive superior satisfaction, they register significantly higher repurchase intentions, however, Panel A indicates that low-involvement customers fail to follow through on those intentions

Consistent with Becker's (1965) theory of time allocation, household income enhances the effect of satisfaction on repurchase visits and spending (Figure 2, Panel B) This result confirms the role of household income as a constraint that attenuates the influence of satisfaction on repurchase behavior for lower-income customers As we expected, household income does not moderate the link between satisfaction and repurchase intentions In contrast, household income has no significant direct effects, a finding we did not anticipate This result may reflect the highly focused merchandising strategy and lifestyle orientation of the specialty retailer we studied

Relational characteristics Our results add to equivocal findings with respect to relational characteristics, which seem to play a moderating role in contractual or industrial purchase contexts or when specific types of repurchase behavior are examined (see Table 1) Relational variables may have weaker moderating effects in contexts marked by discrete purchase events and low exit barriers than in contractual relationships (e g , Bolton 1998, Reinartz and Kumar 2000, Verhoef 2003) The predicted nonsignificant moderating effects of relationship age and relationship program participation on repurchase intentions and the positive direct effects on repurchase visits and spending but not on intentions are consistent with our belief that it is difficult for customers to incorporate background factors such as relationship age and program participation into future purchase predictions

The results indicate that habit plays a major role in determining behavior in this context, and we speculate that relationship programs that feature direct communications may act as a personal shopper by providing updates on merchandise, sales, and promotions that simplify the shopping process These programs conserve participants' resources and provide them with more frequent incentives to visit the retailer's stores Participants may also perceive a greater relationship investment by the retailer and respond with higher behavioral commitment, even if their intentions are unaffected

Marketplace characteristics Our results add to the small number of studies that have demonstrated moderating effects of marketplace characteristics, and the results highlight the importance of considering firm × competitor interactions that distinguish retail competition across geographic marketplaces The significant results for convenience as a positive moderator of satisfaction's effects on repurchase visits and spending highlight the importance of this relatively unexamined construct Collectively, the findings suggest that convenience directly encourages repurchase visits but that repurchase spending occurs only if satisfaction also is high

Convenience has been conceptualized as a multidimensional construct that has particular importance for retail patronage behavior (Seiders, Berry, and Gresham 2000) We contribute to the emerging literature in this area by developing and testing a scale that captures the multiple dimensions of shopping convenience As a threshold variable, convenience assumes a different role from switching costs, which have been examined in other studies (e g , Burnham, Frels, and Mahajan 2003, Jones, Mothersbaugh, and Beatty 2000) Whereas switching costs represent a one-time penalty for customers that is directly associated with moving from one firm to another, convenience is a strategically used marketing variable and a relatively stable attribute of the offering The lack of convenience can be a motive to defect, whereas the presence of convenience can motivate trial or discourage defection

Our study is one of the first to examine the moderating effect of competitive intensity on the satisfaction–repurchase relationship directly The results support our expectation that increasing competition attenuates the positive effect of convenience, which is a relatively easy-to-copy source of advantage It would also be instructive to explore the extent to which competitive intensity erodes other sources of competitive advantage Furthermore, competition exerts a positive main effect on repurchase visits, which suggests that competitors in this category benefit from locating next to one another to create a shopping destination

TABLE 4
Summary of Hypothesized Results

Hypothesized Moderators of the Effect of Satisfaction on:	Repurchase Behavior					
	Repurchase Visits		Repurchase Spending		Repurchase Intentions	
	Hypothesis	Supported	Hypothesis	Supported	Hypothesis	Supported
H_1 Involvement × satisfaction	+	No	+	**Yes**	0	No
H_2 Income × satisfaction	+	**Yes**	+	**Yes**	0	**Yes**
H_3 Relationship age × satisfaction	+	No	+	No	0	**Yes**
H_4 Relationship program participation × satisfaction	+	No	+	No	0	**Yes**
H_5 Convenience × satisfaction	+	**Yes**	+	**Yes**	0	**Yes**
H_6 Convenience × competition × satisfaction	–	**Yes**	–	**Yes**	0	**Yes**

Notes + = variable moderates (enhances) the positive relationship between customer satisfaction and repurchase behavior, – = convenience moderates (enhances) the relationship between satisfaction and repurchase behavior when competitive intensity is low but not when competitive intensity is high, and 0 = variable does not moderate the relationship between customer satisfaction and repurchase intentions

Implications for Managers

Satisfaction scores by themselves may not predict repurchase behavior accurately and may create false security if managers assume that higher satisfaction scores necessarily lead to stronger repurchase behavior That someone is an ongoing customer suggests that he or she is at least somewhat or very satisfied (if not delighted) However, greater value may be gleaned by tracking defecting customers to determine the cause of their defection or by developing customer relationship management systems that track actual repurchase decisions Such behavioral data are more accurate in evaluating the effectiveness of firms' marketing strategies and therefore represent an important complement to customer self-reported data

Managers also would benefit from a better understanding of moderating variables, such as involvement and household income, that can be used to segment customers into lower or higher repurchase groups Firms can identify customers with higher levels of involvement and then attempt to foster long-term relationships with members of that group Managers can invest resources in offering programs (e g , by using initiatives such as in-store events, experiential classes, and charitable campaigns) to increase customer involvement For example, Whole Foods Market regularly promotes a program in which it matches customers' contributions to featured national environmental organizations through the highly visible sale of coupons offered for purchase at the stores' checkout terminals Our results support the assumption that these carefully focused initiatives can lead to more repurchase visits and spending by increasing involvement among customers

Our results also suggest that managers should encourage repurchase behavior through deliberately multifaceted strategies that conserve customers' time and effort For example, innovative and comprehensive approaches to site location analysis should be a priority for retailers Retail firms can develop strategies that promote convenience and reduce uncertainty by communicating specific and detailed information about merchandise online and by focusing on coordination to ensure consistency across channels Related to this is the importance of encouraging customers to opt in to permission-based communications and then delivering tangible value to those who participate in relationship programs In our study, respondents from the e-mail sample visited and spent approximately twice as much in the store as did the postal mail respondents (see Table 2) Managers should consider offering incentives to motivate customers to join these programs Moreover, firms should not only allocate resources to attract and retain customers who elect to join permission-based communications programs but also use this channel as a means for creative differentiation These types of initiatives construct effective exit barriers and contribute to competitive strength and viability

Limitations and Further Research

As with all research, our study is constrained by limitations that suggest areas for further research Although prior research suggests that satisfaction is a partial mediator of the effect of convenience on repurchase, we do not explicitly examine the direct effect of convenience on satisfaction In terms of our sample, 99% was female, because prior research has demonstrated shopping differences between men and women, caution should be exercised when extending our findings to a general population The sample also included only current customers, thus, our findings may not extend to noncustomers who have no experience with the firm or to customers who have defected We encourage additional research that examines defection to illuminate the differences between customers who defect and those who do not

We especially encourage additional studies that investigate direct and moderating effects of relational characteristics We collected objective repurchase measures one year after we measured the relationship program participation, but endogeneity cannot be completely ruled out as an alternative explanation for the robust direct effects, because customers who elect to participate in relationship programs may be particularly enthusiastic or loyal If this is true, the causal ordering between relationship program participation and repurchase behavior is ambiguous We believe that the involvement construct included as an independent measure effectively controls for purchase category enthusiasm, but we did not control for store loyalty Further research could attempt to disentangle relationship program participation effects from the effects of other, related constructs

The dynamism of fashion, which encourages variety-seeking shopping behavior, might explain the lack of significant moderating effects of relational characteristics in the current study Significant moderating effects of relational characteristics might be found in discrete repurchase contexts that are less dynamic and less hedonic The type of relationship program that the retailer implements might also affect whether moderating effects manifest For example, relationship programs that are multilevel (e g , with different levels of benefits) rather than dichotomous (as was the case with the retailer in our study) might elicit significant moderating effects

Our results indicate key moderating roles of customer characteristics, such as involvement and income, and marketplace characteristics, such as perceived convenience and competitive intensity Further research could provide a deeper understanding of how these variables and relational characteristics influence repurchase behavior across a variety of conditions We suspect that convenience is important in explaining behavior for discrete, recurring purchase decisions and likely becomes even more important as the frequency of repurchase increases (e g , supermarket shopping) The multidimensional convenience scale that we present in the Appendix may be useful in exploring the role of convenience in other purchase contexts

The study of additional customer and marketplace characteristics that may moderate the satisfaction–repurchase relationship is an important next step Customer characteristics that warrant examination for moderating effects (see Table 1) include the propensity to engage in relationships and variety seeking Additional marketplace characteristics, such as switching barriers and the attractiveness of alternatives for customers, should also be investigated further (Jones, Mothersbaugh, and Beatty 2000) For example, if attractive alternatives exist, less-satisfied customers would be more likely to register regret (in passing up the alternative), thus, they should be less likely to repurchase from the focal retailer (Inman, Dyer, and Jia 1997, Inman and Zeelenberg 2002, Lemon, White, and Winer 2002) This suggests that the link between satisfaction and repurchase would be more positive when attractive alternatives exist

We examine the impact of customer, relational, and marketplace factors in a specialty retailing context in which repurchase behavior equals repatronage We propose that these three categories of moderators likely generalize across repurchase situations, thus, the conceptual framework in Figure 1 can be applied, for example, to brand repurchase and to retail repatronage behavior More specifically, we expect that the categories of moderators are generalizable and that the specific variables in each category that are salient may vary across purchase situations Therefore, the conceptual framework should be tested in additional repurchase contexts to confirm that it can generalize across products and services

Finally, to our knowledge, no research has examined the role of situational factors in moderating the satisfaction–repurchase association Decisions influenced by transitory needs, such as those driven by emergency, point-of-purchase, or time pressure factors, often lead customers to engage in isolated unsought, impulse, or suboptimal purchase behavior Such situational moderating influences warrant better understanding in terms of how they affect specific, stand-alone transactions and ongoing customer–firm relationships

Despite these limitations and opportunities for additional research, the current study introduces new insights into the moderated relationship between satisfaction and repurchase behavior in a context marked by discrete, recurring purchases The conceptual framework and empirical results improve the understanding of the complex and contingent relationship between customer satisfaction and repurchase behavior and suggest that habit, convenience, task simplification, and individual differences in involvement and household income play important roles The findings also serve to identify new directions for further research that ultimately will enhance the understanding of what drives repurchase behavior

APPENDIX
Item Descriptions and Measurement Model Results for Latent Constructs

Item Descriptions	Lambda Loading	Construct Reliability	Average Variance Extracted
Decision Convenience		75	52
I can easily determine prior to shopping whether SR will offer what I need	82		
Deciding to shop at SR is quick and easy	50		
I can quickly find information before I shop to decide if SR has what I'm looking for	79		
Access Convenience		82	54
I am able to get to SR quickly and easily	79		
SR offers convenient parking	59		
SR offers convenient locations	87		
SR offers convenient store hours	67		
Transaction Convenience		89	73
I am able to complete my purchase quickly at SR	84		
SR makes it easy for me to conclude my transaction	93		
It takes little time to pay for my purchase at SR	78		
Benefit Convenience		84	57
It is easy to find the products I am looking for at SR	80		
I can easily get product advice at SR	59		
The merchandise I want at SR can be located quickly	85		
It is easy to evaluate the merchandise at SR	75		
Postbenefit Convenience		80	61
SR takes care of product exchanges and returns promptly	74		
Any after-purchase problems I experience are quickly resolved at SR	73		
It is easy to take care of returns and exchanges at SR	76		
Satisfaction		90	74
I am pleased with the overall service at SR	82		
Shopping at SR is a delightful experience	87		
I am completely satisfied with the SR shopping experience	88		

APPENDIX
Continued

Item Descriptions	Lambda Loading	Construct Reliability	Average Variance Extracted
Involvement		89	73
I have a strong personal interest in stores like SR	81		
Stores like SR are very important to me	92		
The kinds of products SR sells are important to me	84		
Repurchase Intentions		81	68
How likely are you to shop more often at SR in the future?	80		
How likely are you to continue shopping at SR?	84		
Fit Statistics			
Chi-square (degrees of freedom = 1363)	2351 60		
Nonnormed fit index	93		
Comparative fit index	94		

Notes SR = the specialty retailer brand name

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Shankar Ganesan, Alan J. Malter, & Aric Rindfleisch

Does Distance Still Matter? Geographic Proximity and New Product Development

Many firms rely on external organizations to acquire knowledge that is useful for developing creative new products and reducing the time needed to bring these products to market Cluster theory suggests that this knowledge is often obtained from organizations located in close geographic proximity Specifically, proximity is assumed to foster heightened face-to-face communication, strengthened relational ties, increased knowledge acquisition, and enhanced new product outcomes The authors identify the limitations of these assumptions and offer an enriched model of the influence of geographic proximity on new product development, which they test using both a cross-sectional survey of 155 firms in the U S optics industry and a longitudinal follow-up survey of 73 of these firms They find that firms located in close proximity engage in increased face-to-face communication, but this communication has little effect on the acquisition of the types of knowledge that lead to enhanced new product outcomes In contrast, they find that e-mail communication leads to both enhanced new product creativity and development speed In addition, they find that relational ties moderate rather than mediate the path connecting geographic proximity and new product outcomes These findings imply that the new product development outcomes typically ascribed to close geographic proximity may actually be attributed to strong relational ties

In the continual search for competitive advantage, firms try to develop innovative new products as quickly as possible The importance of new product development for long-term competitive success is widely recognized by the marketing community (for a review, see Hennart and Szymanski 2001) In general, marketing has viewed the development of new products from the perspective of an isolated firm engaged in solo activity Thus, the major thrust of extant new product development research has been on internal processes, such as the formation and coordination of new product development teams (e g , Olson, Walker, and Reukert 1995, Sarin and Mahajan 2001) and the role of organizational culture in new product development success (e g , Deshpandé, Farley, and Webster 1993, Moorman 1995)

Because of the growth of global competition, rapid technological advances, and increasing demands from customers, many firms realize that they need help from external organizations, such as customers, suppliers, and even competitors, to develop innovative and timely new products (Wind and Mahajan 1997) In response, an increasing number of marketing studies have begun to examine new product development alliances (Rindfleisch and Moorman 2001, 2003, Sivadas and Dwyer 2000) However, research suggests that formal alliances represent only a small fraction of interorganizational influence on new product development because much of this influence comes in the form of informal information sharing rather than formal agreements (Allen 1983, Von Hippel 1987) To date, the marketing literature has little to contribute to the nature or the impact of this informal information sharing on new product development activities

Outside of marketing, however, the connection between informal interorganizational information sharing and new product development has received considerable attention from scholars who study industry clusters These scholars argue that informal information sharing is vital for new product development and that this sharing is facilitated by geographic proximity, which serves to enhance face-to-face communication and the development of strong relational ties (Gordon and McCann 2000, Porter 1998a, b, Sternberg 1999) As evidence for these claims, the cluster literature has generated many case studies that document the innovation-related benefits associated with such industry clusters as Silicon Valley (Saxenian 1994), the Formula 1 race car cluster near London (Henry and Pinch 2000), and the knitwear and clothing clusters in northern Italy (Rosenfeld 1997) Although these case studies suggest a wide range of benefits for firms located in such clusters, the evidence is mostly anecdotal and does not directly examine the

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process by which geographic proximity affects new product outcomes

In this article, we offer a new conceptual model of how geographic proximity affects new product development outcomes However, rather than taking cluster theory's assumed linkages at face value, we offer an enriched theoretical explanation that integrates cluster theory with research on electronic communication, interorganizational relationships, organizational learning, and new product development This alternative model accounts for important subtleties that cluster theorists have not considered For example, we question the widely held assumption that geographic proximity leads to close relational ties (e g , Porter 1998a, b) Similarly, our model recognizes that electronic communication may rival face-to-face contact as a means to acquire key knowledge We test the proposed model through both a cross-sectional survey of 155 optics manufacturing firms and a longitudinal survey of 73 of these firms

The Role of Distance in Marketing and New Product Development

The role of distance (or location) has a long history in the marketing literature and has been examined across a wide range of contexts, including marketing-mix decisions (e g , Howard 1957), retail structure (e g , Cox 1959, Ingene and Brown 1987), distribution channel design (e g , Bucklin 1966), and manufacturing investment (e g , Alderson and Green 1964, Greenhut 1956) In general, this earlier literature focused on spatial distribution of buyers and sellers and physical distribution costs More recent marketing studies examine the role of geographic proximity in interfirm relations, finding that firms in close geographic proximity face lower costs (Cannon and Homburg 2001), display a weaker competitor focus (McEvily and Zaheer 1999), and draw on each other's knowledge base when developing new products (Rosenkopf and Almeida 2001) Thus, the marketing literature has shown an enduring interest in geographic location, however, it has given relatively little attention to the role of location in interorganizational new product development

Geographic proximity has also been the subject of considerable inquiry among economists (e g , Krugman 1991, Marshall 1920) For example, the concept of "agglomerative economies" argues that geographically concentrated firms in the same industry benefit from externalities, such as access to skilled labor, existing channels of distribution, and knowledge spillovers (e g , Ciccone and Hall 1996, Goldstein and Gronberg 1984) This view has given rise to the concept of industry clusters (also known as "industrial districts") among scholars in economic geography, regional development, and business strategy (e g , Porter 1990, 1998a, b, Rosenfeld 1997, Saxenian 1994, Sternberg 1991) According to Porter (1998b, p 199), clusters are "a geographically proximate group of interconnected companies and associated institutions in a particular field " An essential difference between the older concept of agglomerative economies and the newer study of industry clusters is the notion that in addition to enjoying a common set of externalities, the members of a cluster also share close relational ties (i e , norms of trust and reciprocity) that foster knowledge exchange (Harrison 1992, Rosenfeld 1997) In contrast to new product alliances, cluster-based knowledge sharing largely reflects informal mechanisms rather than formalized cooperative arrangements (Enright 1991)

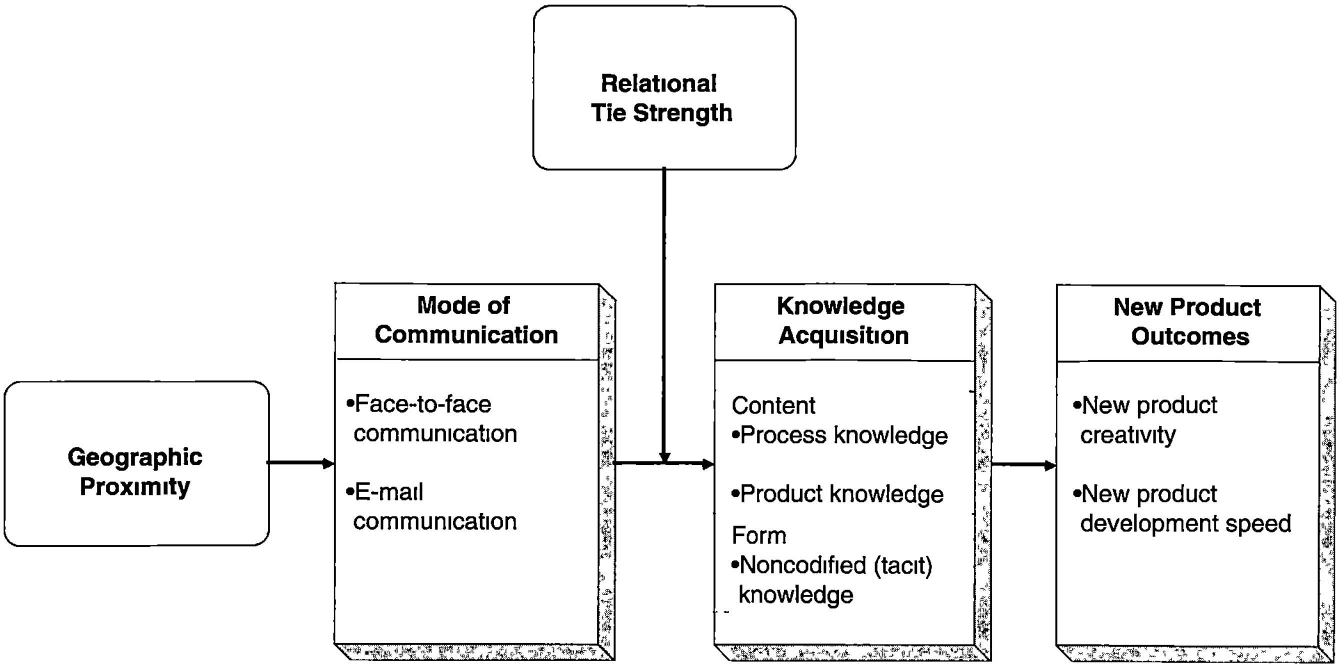
Cluster theorists argue that clusters represent a new way to view competitiveness and strategy in general (e g , Porter 1990, 1998a, b) Specifically, cluster theory offers a novel, institutional perspective on marketing strategy by suggesting that individual firm-level outcomes are influenced by a manufacturer's location in a broader, geographically concentrated learning community Thus, cluster theory points to the important role of external players, such as nearby suppliers, customers, competitors, and research institutes A firm's relationships (both geographic and social) with these broader constituents are believed to play a key role in its learning ability, innovation outcomes, and ultimate success (Porter 1998a, b, Saxenian 1994) As a result, cluster theory emphasizes the importance of external agents in providing firms with the information and know-how necessary for innovative activities

To date, cluster research concentrates on either developing theoretical treatises of the benefits of geographic proximity or demonstrating industry clusters in action through case studies of prominent clusters In general, cluster advocates seem to suggest that geographic proximity provides an almost magical effect on new product innovation The purported benefits of geographic proximity for new product development hinge on three critical but relatively untested assumptions (1) proximity enhances face-to-face communication and the development of strong relational ties (e g , Enright 1991, Rosenfeld 1997, Saxenian 1994), (2) face-to-face communication is the optimum way to acquire knowledge (e g , Porter 1998b, Sternberg 1991), and (3) the most valuable knowledge comes in tacit (i e , noncodified) form (e g , Porter 1998b, Rosenfeld 1997) However, as we note in the following section, research on interorganizational relationships, electronic communication, organizational learning, and new product development indicates that each of these assumptions may be either inaccurate or incomplete Our next section integrates the key findings from these other literature bases into cluster theory to develop an enriched model of how geographic proximity influences new product development

Conceptual Framework

In line with both cluster theory (e g , Saxenian 1994, Sternberg 1999) and research on new product development (e g , Moorman 1995), our conceptualization of how geographic proximity influences new product development focuses on the acquisition and utilization of new product–related knowledge We define this knowledge as "technical information directly relevant to new product development" (Rindfleisch and Moorman 2001, p 4) and recognize that this knowledge has properties of both form and content The remainder of this section elucidates the theoretical basis of our model and its hypothesized effects, which we graphically depict in Figure 1

FIGURE 1
The Effect of Geographic Proximity and Relational Ties on New Product Outcomes



Geographic Proximity, Communication, and Relational Ties

The fundamental tenet of cluster theory is that close geographic proximity enables frequent face-to-face contact with key knowledge providers, including suppliers, buyers, research institutes, alliance members, and even competitors (Audretsch 1998, Enright 1991, Rosenfeld 1997) For example, Sternberg (1991) describes how shared geographic proximity among optics firms in Rochester, N Y, enables them to engage in frequent face-to-face communication through such forums as local engineering association meetings Likewise, Audretsch and Stephan (1996) suggest that close geographic proximity facilitates a firm's face-to-face contact with scientists from research institutes through participation in local workshops and seminars and through informal social interactions This purported link is also supported by research on interpersonal communication, which has found that physical proximity is positively related to greater amounts of face-to-face communication (Conrath 1973, Gullahorn 1952)

In addition to communicating face-to-face, cluster members can also communicate with one another through several alternative communication channels, such as telephone, fax, mail, e-mail, and electronic discussion groups To date, the cluster literature is largely silent on the relationship between geographic proximity and these alternative modes of communication Intuitively, there is no reason to expect that physical closeness should enhance these other forms of communication, because most of them have been developed to overcome physical distance (Audretsch and Stephan 1996) Indeed, because new product development personnel in organizations located further away (i e, beyond a short driving distance) should have less opportunity to meet face-to-face, they may favor the increased usage of distance-spanning communication such as e-mail as a partial substitute for face-to-face meetings However, the lack of prior research on this topic does not provide a solid basis to hypothesize that proximity will be either positively or negatively related to e-mail communication Thus

> H_1 Geographic proximity is (a) positively related to the frequency of face-to-face communication but (b) unrelated to the frequency of e-mail communication

Geographic proximity is also believed to help firms develop strong relational ties with their knowledge providers (Audretsch 1998, Harrison 1992, Henry and Pinch 2000, Porter 1998a) For example, Harrison (1992) notes that the repeated interaction (both planned and unplanned) afforded by close geographic proximity helps firms develop mutual trust As Rosenfeld (1997, p 20) suggests, "Trust is established through the kind of informal business and social exchanges that take place at barbecues and golf events, not videoconferences" This view is also echoed by sociologists, who argue that close physical proximity enhances the development of trust and reciprocity among community members (Etzioni and Etzioni 1999) Thus, close geographic proximity is assumed to enhance the formation of "strong ties" between knowledge providers and receivers (see Granovetter 1973)

Although geographic proximity may foster the development of strong ties among some cluster members, the generalizability of this relationship remains an open question The literature does not provide empirical evidence of such a relationship As Granovetter (1973) notes, strong ties take a considerable amount of time and effort to build and maintain Thus, social communities are likely to be composed of a few strong ties and many weak ones According to Van der Linde (2003), geographically concentrated industry clusters often consist of hundreds of firms Thus, it seems untenable that a firm would develop strong relational ties with all the suppliers, buyers, competitors, and research institutes within close geographic proximity Moreover, in the marketing relationship literature, geographic proximity is not a central component of any existing conceptualizations of relational norms, commitment, or trust (e g , Ganesan 1994, Heide 1994, Moorman, Zaltman, and Deshpandé 1992) Therefore, we diverge from cluster theory by suggesting that relational closeness is not synonymous with or an automatic consequence of geographic proximity, we consider it an exogenous construct in our conceptual model Thus

> H_2 Geographic proximity is unrelated to relational tie strength with knowledge providers

Communication, Knowledge Acquisition, and Relational Ties

As we previously noted, cluster theorists emphasize the importance of interpersonal, face-to-face communication for knowledge acquisition Our conceptual model attempts to enrich this view by adopting a broader perspective of both constructs Specifically, as our first hypothesis suggests, e-mail communication is an important means of knowledge acquisition Moreover, we recognize that knowledge has properties of both form and content In this section, we specify the relationship between communication mode and knowledge type in greater detail, and we consider the moderating role of relational ties

Communication and knowledge form The cluster literature emphasizes tacit knowledge acquisition as a key outcome of face-to-face communication (Enright 1991, Porter 1998a, b, Rosenfeld 1997) However, tacit knowledge is inherently difficult to articulate (Polanyi 1966), it is difficult to codify in writing, tends to be hands-on and informal in nature, and is thus difficult to transfer to others (Sternberg et al 2000) Such noncodified knowledge is viewed as best delivered through individual, face-to-face contact in an apprentice-like manner This view of tacit knowledge focuses on the form (i e , codification in writing) of knowledge as a key property that affects its ease of transfer (Kogut and Zander 1992) Everyday examples of noncodified knowledge include such practical know-how as tying shoes or riding a bicycle In an industrial context, noncodified knowledge often includes the embodied know-how of a skilled technician, which can be essential to the development of innovative routines to manufacture new products

Given its embodied nature, knowledge in noncodified form is assumed to be best transmitted through the intimate, high-context, and hands-on setting of face-to-face interaction rather than through less personal, sensory-poor, distance-spanning communication vehicles, such as telephone conversations or e-mail messages (Baptista 2001, Zaheer and Manrakhan 2001) In addition to being intimate and informal, face-to-face communication is also considered richer and more capable of conveying more nuanced understandings because of its use of nonverbal cues and the ability to provide synchronous feedback (Daft and Lengel 1986) Thus, the rich modality of face-to-face communication should enhance noncodified knowledge acquisition (Porter 1998a, b, Sternberg 1991) Thus

> H_3 Face-to-face communication is more strongly related to noncodified knowledge acquisition than is e-mail communication

Communication and knowledge content (product and process) Research on organizational learning suggests that in addition to form, content is another important aspect of knowledge This literature distinguishes between product knowledge and process knowledge (Kogut and Zander 1992, Rindfleisch and Moorman 2001) Product knowledge encompasses facts, whereas process knowledge encompasses procedures (Kogut and Zander 1992, Zander and Kogut 1995) Because we expect that relational ties have a moderating influence on the effect of mode of interpersonal communication on the acquisition of each type of knowledge content, we do not offer a hypothesis about the direct effects between these constructs, instead, we focus on the more nuanced moderating role of relational ties

The moderating role of relational ties Although relational ties are unlikely to covary with geographic distance, we suggest that these ties are important in terms of the acquisition of knowledge content from knowledge providers Specifically, we propose that relationship tie strength moderates the relationship between the communication mode and both product and process knowledge acquisition This premise is based on findings from the strength-of-ties literature, which suggests that valuable knowledge is much more likely to be transmitted through strong ties than through weak ones For example, Frenzen and Nakamoto (1993) show that consumers are significantly more willing to transmit knowledge about an important sale to a close friend than to a casual acquaintance In an organizational context, Rindfleisch and Moorman (2001) find that tie strength is positively associated with knowledge acquisition in new product alliances

Specifically, we propose that strong relational ties enhance the transfer of each type of knowledge content through its primary communication mode (i e , face-to-face or e-mail) An important dimension of knowledge that affects its ease of transfer is complexity Zander and Kogut (1995) argue that more complex knowledge (i e , knowledge that involves a larger number of critical and interacting elements) is more difficult to communicate and transfer to another organization According to this view, product-related knowledge tends to be relatively simple and straightforward, thus, product knowledge should be highly amenable to e-mail communication In contrast, knowledge about processes tends to be more complex, thus, it is more difficult to communicate, rendering it more amenable to face-to-face communication Unlike e-mail, face-to-face communication affords the opportunity to explain highly detailed specifications, monitor a recipient's understanding, and clarify misunderstandings in real time Strong relational ties should enhance the transfer of both types of knowledge because the closeness and mutual reciprocity that characterize such ties (e g , Granovetter 1973) will enhance the ability and motivation of knowledge providers to better understand how best to convey and clarify both product and process knowledge. Thus

H_{4a}: Relational tie strength moderates the effect of e-mail communication on product knowledge acquisition such that its acquisition is greater among firms with strong ties to their knowledge providers.

H_{4b}: Relational tie strength moderates the effect of face-to-face communication on process knowledge acquisition such that its acquisition is greater among firms with strong ties to their knowledge providers.

Knowledge Acquisition and New Product Outcomes

As several new product development scholars note, knowledge is the foundation for new product innovation (Kotabe and Swan 1995; Madhavan and Grover 1998; Moorman and Miner 1998). Both the form and the content of this knowledge appear to be important inputs to successful new product development outcomes. For example, noncodified (tacit) knowledge is viewed as providing firms with the embodied know-how necessary to develop innovative products (Nonaka, Toyama, and Konno 2000). Conversely, product and process knowledge provide the important facts, specifications, and procedural details that enable a firm to control the innovation process (Nonaka and Takeuchi 1995).

For many firms, two of the most critical outcomes of new product development are (1) the creativity of new products and (2) the speed with which these products are developed (Griffin 1993; Moorman 1995). Although these outcomes are often positively related (Rindfleisch and Moorman 2001), they appear to have different antecedents in terms of knowledge inputs. Specifically, new product creativity is most often determined in the early stages of the product development process (Urban and Hauser 1980). Research indicates that the initial stages of idea generation and concept testing are highly reliant on the development or acquisition of novel concepts and findings (i.e., product knowledge) (Andrews and Smith 1996). In contrast, the speed of new product development is more highly dependent on later stages of the product development process (Urban and Hauser 1980). Research suggests that late-stage activities, such as prototype development and manufacturing design, rely heavily on the development or acquisition and application of efficient processes and procedures (i.e., process knowledge) (Millson, Raj, and Wilemon 1992).

An examination of the different knowledge needs of new product creativity and development speed suggests that creativity mostly depends on product knowledge acquisition, whereas speed mostly depends on process knowledge acquisition (Miner, Bassoff, and Moorman 2001; Rindfleisch and Moorman 2001). Furthermore, noncodified knowledge appears to influence creativity and speed differently. Specifically, the informal, unstructured, and dynamic nature of tacit knowledge should enhance new product creativity (Cooke and Morgan 1998; Leamer and Storper 2001) but hamper the speed of new product development (Hansen 1999; Zander and Kogut 1995). Thus

H_5: New product creativity is more strongly influenced by product knowledge than by process knowledge.

H_6: New product development speed is more strongly influenced by process knowledge than by product knowledge.

H_7: (a) New product creativity is positively related to noncodified knowledge, whereas (b) new product development speed is negatively related to noncodified knowledge.

Organizational learning scholars often characterize the acquisition and utilization of knowledge as a dynamic process that unfolds over time (Moorman 1995; Nonaka, Toyama, and Konno 2000). To use acquired knowledge fully, organizations must engage in assimilation, sensemaking, and dissemination activities. The dynamic nature of organizational learning is reflected in the concept of absorptive capacity, which posits that over time, firms can develop their ability to assimilate and apply knowledge effectively (Cohen and Levinthal 1990). Although absorptive capacity has traditionally been conceptualized as a byproduct of internal research and development (R&D), recent research suggests that it can also be fostered by the acquisition of information from external knowledge providers (Scott 2003; Zahra and George 2002). Thus, in addition to enhancing short-term effects on new product outcomes by providing information that helps a firm solve an immediate new product development dilemma, product and process knowledge acquisition can also have a longer-term payoff for new product development by enhancing a firm's basic ability to develop new products in a more creative and timely manner.

Tacit knowledge is also a dynamic entity that can take considerable time to convey and acquire (Polanyi 1966). For example, in Germany, the making of optical instruments has been called the "technology of the golden hands," requiring specialized skills that are traditionally passed from an experienced craftsman to an apprentice over a period of several years (Enright 1991). Thus, cluster theory's assumed beneficial effects of tacit knowledge on new product development outcomes may occur over a lengthy period. Over time, the positive effects of acquiring noncodified knowledge on new product creativity should be enhanced, whereas its negative effects on new product development speed should be attenuated as the recipient firm acquires a deeper level of understanding and learns heuristic shortcuts to speed new products to market. Thus, we expect the following effects of knowledge acquisition (both content and form) on new product outcomes over time:

H_8: The positive effect of acquiring product knowledge on new product creativity is strengthened over time.

H_9: The positive effect of acquiring process knowledge on new product development speed is strengthened over time.

H_{10}: (a) The positive effect of noncodified knowledge on new product creativity is strengthened over time, and (b) the negative effect of noncodified knowledge on new product development speed is weakened over time.

Method

Participants and Procedures

We selected the U.S. optics industry as the context for our inquiry. This industry is particularly appropriate because optics manufacturers place considerable importance on knowledge acquisition and new product development (Committee on Optical Science and Engineering 1998) In addition, most U S optics firms and research institutions are located in a few geographically concentrated clusters (e g , Boston, Boulder, Orlando, Rochester, Tucson)

Although all optical products share a common basis in the science of light and light transmission, the industry includes a diverse range of products and applications (e g , fiber optics for telecommunications, imaging systems for medical and office equipment, lenses for microscopes and telescopes) and does not fall neatly into existing industry classification systems, such as Standard Industrial Classification codes Therefore, we constructed our own database of optics manufacturers from membership directories of professional societies and regional industry associations From these sources, we identified 655 U S optics firms for possible inclusion in our study

In line with prior studies of new product development (e g , Rindfleisch and Moorman 2001, Robertson and Gatignon 1998), we identified specific key informants (Campbell 1955), targeting vice presidents of R&D or people in similar high-level positions with intimate knowledge of their firms' new product development activities Precontacting these people for verification eliminated 219 firms that were either not manufacturers or not engaged in any recent new product development or for which we were not able to identify a knowledgeable informant This screening process yielded a sampling frame of 436 firms

Initial survey We mailed each firm a cover letter, an endorsement letter from the head of a leading university-based optical sciences center, a survey, a postage-paid reply envelope, and $5 as an incentive Three weeks later, we sent a reminder postcard We mailed a second set of survey materials (sans the $5) to firms that did not respond within six weeks Twelve surveys were returned as undeliverable, and another 36 firms replied that they were not currently involved in any new product activities This left a final sampling frame of 388 firms, 169 of which returned the survey (155 were usable), for an effective response rate of 44% The response rate and sample size compare favorably with recent studies of new product development (e g , Sivadas and Dwyer 2000) We received the 155 usable responses from firms in 25 states, including each of the eight U S optics clusters Of the 155 responding firms, 124 (80%) were located in an optics cluster, and the rest were located in states without a large concentration of optics firms

We assessed potential nonresponse bias through an extrapolation method that compared early respondents with late respondents (Armstrong and Overton 1977) We found no significant differences in means or variances for any key constructs between early (i e , before the second mailing) and late (i e , after the second mailing) respondents, suggesting that nonresponse bias was not a problem in this study As a validity check, respondents reported that they were highly knowledgeable about (mean = 6 62 on a seven-point scale) and involved in (mean = 6 38 on a seven-point scale) the focal new product development project and had worked for their firm for an average of ten years Seventy-one percent were chief executive officers, presidents, vice presidents, or directors, and most respondents (72%) had advanced degrees These results suggest that our sampling approach was successful in identifying knowledgeable key informants

Follow-up survey Approximately 30 months following the mailing of our initial survey, we conducted a follow-up survey to test our three longitudinal hypotheses (H_8, H_9, and H_{10}) We sent surveys to 152 of our original respondents (three respondents did not provide contact information) Surveys for 27 firms were undeliverable because of a combination of factors, leaving a final sampling frame of 125 firms Of the surveys, 73 were returned for an effective response rate of 58% Of the 73 responding firms, 56 (77%) were located in an optics cluster The firms that responded to the follow-up survey were statistically similar to the nonresponding firms

Measures and Validation

Measure development began with field interviews and pretests of the survey among several people who were connected to the U S optics industry These efforts helped develop and refine our measurement scales and general survey design Subsequently, we detail the measures we used to assess our key constructs and control variables, and we provide their intercorrelations, reliability indexes, and descriptive statistics in Table 1 The specific wording and scaling used for each measure appear in the Appendix To ground our measurement assessment, we instructed all respondents to "focus on *one* specific new product project that either has recently concluded or has been active over the past six months "

Key knowledge provider We asked respondents to select the most important optics firm or research institution their firm had been in contact with during the focal project and to classify the nature of their relationship with this organization (e g , supplier, customer, competitor) They were told that formal or contractual relations with this organization were not necessary We refer to this organization as the key knowledge provider The majority of key knowledge providers were channel members (suppliers = 40%, customers = 22%) The rest were research institutions (19%), alliance partners (12%), competitors (2%), and others (5%)

Geographic proximity We assessed geographic proximity by asking respondents to report the locations and distances (in miles) of the optics firm or research institute they identified as a key knowledge provider We confirmed (and adjusted when necessary) this self-reported distance by calculating the actual geographic distance between the respondent's firm and the key knowledge provider using distance calculation applications (e g , MapQuest)

As Table 1 shows, on average, the firms in our sample were located more than 1000 miles from their key knowledge provider Of the firms, 33% were located less than 100 miles from the key knowledge provider (i e , within a two-hour drive), whereas 20% were located more than 2000 miles from the key knowledge provider To control for this distributional skewness, we transformed geographic distance using a log transformation

Relational tie strength We measured strength of the relational tie between the respondent's firm and the focal

TABLE 1
Key Measure Statistics

Measure	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10	11	12
1 Geographic distance	1119	1420	N A											
2 Face-to-face communication	1 30	89	– 02	N A										
3 E-mail communication	2 00	1 17	05	09	N A									
4 Tacit knowledge form	4 34	1 45	– 14*	14*	– 08	69								
5 Process knowledge	2 95	1 45	– 06	03	31***	– 14*	85							
6 Product knowledge	3 21	1 26	05	– 06	41***	– 19**	43***	88						
7 New product creativity	5 35	1 13	– 03	– 17**	11	– 04	26***	33***	89					
8 New product development speed	4 10	1 09	02	– 07	02	– 27***	21***	06	24***	85				
9 Relational tie strength	4 97	1 07	– 10	05	24***	– 19**	35***	37***	15*	15*	91			
10 Annual sales (in millions of dollars)	94 6	617	– 05	– 03	– 05	– 03	– 10	01	11	08	– 01	N A		
11 Number of employees	327	1593	– 06	– 05	– 06	– 05	– 09	01	10	10	00	94***	N A	
12 Personal interaction	6 30	6 87	– 16**	– 03	04	– 16**	– 07	– 07	12	– 02	16**	00	– 01	N A
13 Organizational interaction	6 42	6 03	– 12	06	– 02	02	03	03	08	– 11	18**	08	07	58***

$^{*}p < 10$
$^{**}p < 05$
$^{***}p < 01$

Notes The coefficient alpha for each measure is on the diagonal, and the intercorrelations among the measures are on the off-diagonal N A = not applicable The correlations reported for geographic distance are based on actual distances Our analyses are based on log-transformed distance knowledge provider with a five-item version of the relational embeddedness scale that Rindfleisch and Moorman (2001) developed As Granovetter (1985) notes, highly embedded relations are composed of firms that share strong ties with one another We assessed relationship embeddedness in both our initial and follow-up surveys ($r = 74$) This scale displayed strong reliability ($\alpha_{initial} = 91$, $\alpha_{follow\text{-}up} = 91$)

Interpersonal communication mode (face-to-face and e-mail) In line with previous research (e g, Cannon and Homburg 2001, Hansen 1999, Mohr, Fisher, and Nevin 1996), we asked key informants how many times during the average workweek (over the previous six months) they personally communicated with scientists, engineers, or technical workers from the focal knowledge provider using each communication mode (i e, face-to-face and e-mail) We chose to phrase this measure at an interpersonal level because cluster theory focuses on the role of interpersonal, face-to-face contact in knowledge transfer activity (Porter 1998a, b) The majority of our respondents (70%) were from small firms (i e, 100 employees or less) and were often the founder, primary scientist, and principal communicator with external knowledge providers Thus, we believe that our measures of communication mode tap the communication patterns of the person most centrally connected to the focal new product development project

Knowledge form The embodied and noncodified nature of tacit knowledge makes knowledge form an inherently difficult construct to measure Nevertheless, prior research has successfully developed several measures of various aspects of this construct (e g, Hansen 1999, Sternberg et al 2000, Zander and Kogut 1995) We used a slightly adapted version of Hansen's (1999) three-item degree-of-knowledge-codification scale, which taps the form of acquired technical knowledge by asking respondents to rate the degree to which the knowledge received by their firm was tacit (cf codified, written, and documented) Thus, higher scores indicate higher degrees of tacitness, and lower scores indicate higher degrees of codification The alpha for this measure was 69

Knowledge acquisition (product and process) To assess the amount of knowledge acquired from the firm's key knowledge provider, we adapted scales that Rindfleisch and Moorman (2001) developed to measure process knowledge acquisition (e g, new manufacturing processes) and product knowledge (e g, key product specifications) Note that knowledge content acquisition is assessed independently from the form (tacit or codified) of acquired knowledge because either process or product knowledge can be codified or noncodified (Kogut and Zander 1992) Both measures displayed good reliability ($\alpha_{process} = 85$, $\alpha_{product} = 88$)

New product outcomes (creativity and speed) To assess new product creativity and development speed, we used slightly adapted versions of scales that Rindfleisch and Moorman (2001) developed, and we assessed both outcomes in our initial and follow-up surveys These measures displayed strong reliability in both surveys (initial survey $\alpha_{creativity} = 89$, $\alpha_{speed} = 85$, follow-up survey $\alpha_{creativity} = 88$, $\alpha_{speed} = 88$) and were significantly correlated over time ($r_{creativity} = 41, p < 001$, $r_{speed} = 31, p < 001$)

Control variables We also asked respondents to report the number of years they (length of personal interaction) and their organization (length of organizational interaction) had interacted with the knowledge provider and the size of their firm in terms of annual sales revenue and number of employees

Examination of dimensionality and discriminant validity We assessed the unidimensionality of the measures we used in our initial survey with a confirmatory factor analysis model using LISREL 8 3 As Table 2 shows, all factor loadings were significant, and all fit indexes met or exceeded recommended levels (comparative fit index [CFI] = 90, nonnormed fit index [NNFI] = 90, root mean square error of approximation [RMSEA] = 07, and standardized root mean square residual [SRMR] = 08) Next, we calculated the composite reliability using the procedures that Fornell and Larcker (1981) suggest We also examined the parameter estimates and their associated t-values and calculated the average variance extracted (AVE) for each construct (Gerbing and Anderson 1988) As Table 2 shows, composite reliabilities ranged from 78 to 90, indicating acceptable levels of reliability for the constructs (Fornell and Larcker 1981) Finally, the AVEs ranged from 51% to 61%, which are greater than the recommended level of 50% (Bagozzi and Yi 1988) We assessed discriminant validity by calculating the shared variance between all possible pairs of constructs and verified that they were less than the AVE for all individual constructs, thus satisfying Fornell and Larcker's (1981) test and indicating that our multi-item scales display adequate discriminant validity

Analysis and Results

We analyzed the data from our initial survey using structural equations modeling (LISREL 8 3) Specifically, we specified a model that examined our a priori hypothesized relationships (Model 1), a model that examined a post hoc set of expanded relationships (Model 2), and a model that investigated a competing perspective (Model 3) The standardized parameter estimates and standard errors for Model 1 and Model 2 appear in Table 3 We analyzed the data from our follow-up survey using regression analysis because the size of our follow-up sample ($n = 73$) did not allow us to employ structural equations modeling techniques (see Table 4)

Measurement Model

In line with Bagozzi and Heatherton's (1994) suggestions, we created two composite items for each latent factor to serve as its indicators We followed this approach for our five latent constructs (i e, noncodified knowledge, process and product knowledge, and creativity and speed of new product development) We also included our three single-item measure constructs (i e, geographic proximity and face-to-face and e-mail communication) and fixed their error variance on the basis of the reliabilities of each measure (Hayduk 1987) Finally, we included four control vari-

TABLE 2
Measurement Model Parameters

Items	Creativity	Speed	Product Knowledge	Process Knowledge	Tacit Knowledge
Create1	66 (8 91)				
Create2	81 (11 94)				
Create3	86 (12 98)				
Create4	81 (11 80)				
Create5	73 (10 28)				
Create6	78 (11 11)				
Speed1		76 (10 62)			
Speed2		74 (10 07)			
Speed3		88 (12 94)			
Speed4		72 (9 86)			
Product1			75 (9 74)		
Product2			68 (8 69)		
Product3			63 (7 78)		
Product4			71 (9 10)		
Process1				78 (11 02)	
Process2				67 (9 02)	
Process3				83 (12 16)	
Process4				82 (11 93)	
Process5				80 (11 61)	
Tacit1					78 (9 83)
Tacit2					89 (11 22)
Tacit3					51 (6 28)
Composite reliability	90	86	79	89	78
Variance extracted (%)	60	60	51	61	55
Highest shared variance (%)	12	12	20	20	11

Notes The numbers indicate standardized factor loading The t-values are in parentheses

ables (annual sales, number of employees, length of personal interaction, and length of organizational interaction), which we treated as independent variables along with geographic proximity

Model 1 (Hypothesized Model) and Model 2 (Expanded Model)

For efficiency purposes, we focus on the results from Model 1 and discuss only the paths in Model 2 that are substantively different from Model 1 With the exception of H_2, we describe our results in the order they are listed in our conceptualization and as portrayed from left to right in Figure 1 We save our discussion of the findings for H_2 until the competing model section (Model 3) because it entails the specification and testing of an alternative model The fit statistics associated with Model 1 are reasonable (CFI = 88, IFI = 87, RMSEA = 08, and SRMR = 09), the overall R^2 is 34, and the explained variance of dependent variables ranged from 11 (creativity) to 56 (e-mail) However, model fit could still be improved Therefore, we estimated a second model (Model 2) that duplicated the paths shown in Figure 1, adding relational tie strength as a moderator of the paths between geographic proximity and communication mode and the paths between knowledge acquisition and new product outcomes The fit for this expanded model (CFI = 90, IFI = 91, RMSEA = 06, and SRMR = 09) is superior to Model 1

Our conceptual model suggests that the effect of communication mode (face-to-face and e-mail) on knowledge content (process and product) is moderated by the strength of the relationship between the focal organization and its knowledge provider We tested these moderating effects through multigroup analyses (Stone and Hollenbeck 1989) by partitioning our sample on the basis of a median split of relational tie strength (median = 5 0) We then assessed the invariance of the parameter estimates between the strong and the weak relational tie subgroups by comparing the chi-square from a model that constrained the paths between communication mode and knowledge content to equality with that of a model that allowed these paths to vary freely This analysis shows that the chi-square difference between the constrained and unconstrained models is statistically significant ($\chi^2(9) = 17\ 02, p < 05$), suggesting the presence of a moderating effect of relational ties

Our results indicate that geographic distance (i e , the inverse of proximity) is negatively related to face-to-face communication ($b = -19, p < 05$) In effect, as the distance (proximity) between optics organizations increases, their frequency of face-to-face communication decreases (increases) Thus, H_{1a} is supported We also find that geographic distance does not affect the frequency of e-mail communication between optics organizations (b = 07, not significant [n s]), in support of H_{1b} This suggests that more proximal organizations have a greater tendency to

TABLE 3
Comparison of Results from Model 1 and Model 2

		Model 1		Model 2	
	Paths	**All Firms**		**Weak Ties**	**Strong Ties**
H_{1a}	Geographic distance → face-to-face communication	– 19** (–2 07)		20 (n s)	– 32*** (–2 82)
H_{1b}	Geographic distance → e-mail communication	07 (n s)		– 15 (n s)	29** (2 15)
H_3	Face-to-face communication → noncodified knowledge	21** (2 31)		– 10 (n s)	32*** (3 70)
H_3	E-mail communication → noncodified knowledge	– 15* (1 77)		14 (n s)	– 19** (–2 53)
		Weak Ties	**Strong Ties**		
H_{4a}	E-mail communication → product knowledge	31*** (2 71)	60*** (5 80)	33*** (3 23)	53*** (5 30)
	E-mail communication → process knowledge	09 (n s)	34*** (4 45)	07 (n s)	35*** (4 05)
H_{4b}	Face-to-face communication → process knowledge	01 (n s)	03 (n s)	00 (n s)	07 (n s)
	Face-to-face communication → product knowledge	– 15* (–1 72)	– 39*** (–3 05)	– 26** (–2 92)	– 32** (–2 78)
H_5	Product knowledge → creativity	33*** (3 70)		04 (n s)	46** (3 91)
H_5	Process knowledge → creativity	16** (1 99)		12 (n s)	21** (2 09)
H_6	Product knowledge → speed	– 03 (n s)		– 01 (n s)	– 01 (n s)
H_6	Process knowledge → speed	20** (2 16)		21* (2 37)	21** (2 37)
H_{7a}	Noncodified knowledge → creativity	05 (n s)		02 (n s)	02 (n s)
H_{7b}	Noncodified knowledge → speed	– 12 (n s)		– 17* (–1 74)	– 17* (–1 74)

*$p < 10$
**$p < 05$
***$p < 01$
Notes We report the common metric completely standardized solution The t-values are in parentheses n s = not significant

exchange knowledge through face-to-face (but not electronic) communication

The results from Model 2, however, reveal that the relationship between geographic proximity and face-to-face communication found in Model 1 is limited to firms that have strong ties to their key knowledge providers (strong ties b = – 32, $p < 01$, weak ties b = 20, n s) In other words, being in close proximity to key knowledge providers appears to enhance face-to-face contact only among relationally close firms Model 2 also shows that though geographic proximity may be unrelated to e-mail communication at an overall level, the presence of strong ties appears to encourage physically distant firms to maintain contact through electronic means (strong ties b = 29, $p < 05$, weak ties b = – 15, n s)

Next, we examined the effects of communication mode on the form of knowledge acquired As cluster theorists predict, we find that face-to-face communication is positively related to noncodified (tacit) knowledge acquisition (b = 21, $p < 05$) We further find that e-mail communication is negatively related to noncodified knowledge acquisition (b = – 15, $p < 10$) Because our hypothesis (H_3) investi-

TABLE 4
Longitudinal Results

Hypotheses	Variables	New Product Creativity at Time 1	New Product Creativity at Time 2	New Product Speed at Time 1	New Product Speed at Time 2
H_8	Product knowledge	30** (2 08)	42*** (2 84)	05 (75)	02 (14)
H_9	Process knowledge	24* (1 67)	– 17 (–1 18)	22 (1 55)	14 (92)
$H_{10a, b}$	Noncodified knowledge	01 (09)	– 14 (– 99)	– 33** (–2 37)	– 27* (–1 89)
	Length of personal interaction	– 01 (– 07)	– 08 (– 48)	– 08 (– 52)	09 (52)
	Length of organizational interaction	06 (37)	22 (1 30)	– 14 (– 86)	24 (1 4)
	Annual sales	– 44* (1 85)	22 (90)	– 39* (1 65)	– 23 (– 93)
	Number of employees	28 (1 15)	– 33 (–1 32)	35 (1 43)	08 (32)
	R^2	27	23	26	21
	Adjusted R^2	16	12	15	09
	F value (degrees of freedom numerator, degrees of freedom denominator)	2 52** (7, 48)	2 05* (7, 48)	2 43** (7, 48)	1 80* (7, 47)

*p < 10
**p < 05
***p < 01

Notes We collected the follow-up (Time 2) survey data 30 months after the initial (Time 1) survey data We ran both the Time 1 and Time 2 regressions using the sample size of 73 respondents that responded to the Time 2 survey The results using the entire sample (n = 155) are similar

gates the relative effects of communication mode on noncodified knowledge acquisition, we conducted a chi-square difference test The difference between the two models is significant ($\chi^2(1)$ = 6 21, p < 001), suggesting that the effect of face-to-face communication is significantly larger than the effect of e-mail communication on noncodified knowledge acquisition These results provide support for H_3 The results from Model 2 further show that the effects of face-to-face and e-mail communication are magnified in the presence of strong ties (b = 32, p < 01, b = – 19, p < 05)

In H_{4a}, we propose that e-mail communication is associated with a greater amount of product knowledge acquisition for firms with strong ties to their knowledge provider Model 1 indicates that e-mail communication is positively related to product knowledge acquisition for both strong and weak ties (b = 60, p < 01, b = 31, p < 01) A chi-square test comparing a constrained with an unconstrained model shows a significant difference ($\chi^2(1)$ = 7 45, p < 01), in support of H_{4a} In addition, we find that e-mail communication is related to the process knowledge acquisition for strong ties (b = 34, p < 01) but not for weak ties (b = 09, n s) These results show that electronic modes of communication, such as e-mail, are positively associated with process and product knowledge acquisition when firms have strong relationships with their knowledge providers

In H_{4b}, we propose that face-to-face communication is associated with a greater amount of process knowledge acquisition for firms with strong ties to their knowledge provider This hypothesis is not supported, face-to-face communication has no effect on process knowledge for either weak or strong ties (b = 01, n s , b = 03, n s) Moreover, we find that face-to-face communication has a negative effect on the product knowledge acquisition for both strong and weak ties (b = – 39, p < 01, b = – 15, p < 10)

Next, we examined the impact of knowledge content and form on new product outcomes As we predicted, product knowledge acquisition is more strongly associated with greater new product creativity (b = 33, p < 01) than is process knowledge acquisition (b = 16, p < 05) A chi-square test in which we allowed the effect of product knowledge on new product creativity to vary compared with one in which we constrained it reveals a significant difference ($\chi^2(1)$ = 6 31, p < 01), in support of H_5 We also find that process knowledge acquisition is more strongly associated with accelerated speed of new product development (b = 20, p < 05) than is product knowledge acquisition (b = – 03, n s), in support of H_6 However, the results do not support H_7, which predicts that noncodified (tacit) knowledge enhances creativity (b = .05, n.s.) and slows down development speed (b = –.12, n.s.). This suggests that the type of content acquired from knowledge providers is more strongly associated with new product outcomes than is the form of knowledge acquired.

Finally, Model 2 shows that the positive linkages between both product knowledge (strong ties: b = .46, $p < .01$; weak ties: b = .04, n.s.) and process knowledge (strong ties: b = .21, $p < .01$; weak ties: b = .12, n.s.) and new product creativity are limited to firms with strong ties to their knowledge providers. Thus, it appears that firms that acquire knowledge from weakly tied providers are unable or unwilling to use this knowledge to develop more creative new products.

Model 3 (Competing Model)

Our specification of relational ties as (1) unrelated to geographic proximity and (2) a moderator of the effect of communication frequency on knowledge acquisition represents a dramatic departure from the way that cluster theory depicts this construct. Specifically, cluster theorists argue that relational ties are a direct outcome of geographic proximity and have a direct influence on knowledge acquisition (Porter 1998b; Rosenfeld 1997).

To test this alternative theoretical perspective explicitly, we specified a competing model that was identical to Model 1 except that (1) we specified a path between geographic proximity and relational tie strength and (2) we removed the moderating paths of relational tie strength between communication mode and knowledge type. In effect, this competing model specifies relational tie strength as a mediator rather than a moderator of the effect of geographic proximity on higher-level cluster outcomes. The results indicate that this alternative model is largely inferior to our hypothesized model; its fit statistics (CFI = .87, NNFI = .86, RMSEA = .12, and SRMR = .15) are weaker than those of Model 1. Moreover, this model revealed that the path between geographic distance and relationship tie strength is not significant (b = –.04, n.s.). These results not only provide strong support for H_2 but also offer significant validity to our moderating model of relational tie strength.

Test of Longitudinal Hypotheses

We examined the longitudinal effect of knowledge form and content on new product development outcomes by specifying two regression models. In both models, the measures of noncodified knowledge, process knowledge, and product knowledge from our initial survey were the independent variables. The dependent variables were our follow-up measures of new product creativity and development speed that we collected 30 months later. As a baseline comparison, we also specified two models that used the same independent variables, but we used the measures of creativity and speed from our initial survey as the dependent variables. As Table 4 shows, the effect of product knowledge on new product creativity is stronger at Time 2 (b = .42, $p < .01$) than Time 1 (b = .30, $p < .05$), and this difference is significant ($p < .05$). In contrast, process knowledge is unrelated to new product development speed at both Time 1 (b = .22, n.s.) and Time 2 (b = .14, n.s.). Finally, noncodified knowledge is unrelated to creativity at both Time 1 (b = .01, n.s.) and Time 2 (b = –.14, n.s.) and is negatively related to new product development speed at both Time 1 (b = –.33, $p < .05$) and Time 2 (b = –.27, $p < .10$). This difference is not significant. Collectively, these results support H_8 but not H_9 or H_{10}.

Discussion

Our research paints a portrait of the role of geographic distance in new product development that is markedly different from that offered by the traditional views of industry clusters and marketing strategy. Specifically, our results show that (1) geographic proximity is related to face-to-face communication but is unrelated to relational ties, (2) relational ties moderate several linkages in the path between geographic proximity and new product development, (3) face-to-face communication is less effective than electronic communication as a means of knowledge acquisition, and (4) knowledge content has a greater effect on new product development than knowledge form. In combination, this set of results is rather surprising when it is juxtaposed with extant theory on industry clusters and marketing strategy, and it offers several insights into the relationship between geographic proximity and new product development.

Theoretical Implications

At first glance, our results appear to suggest that distance still matters. The results of both Model 1 and Model 2 show that firms located in closer physical proximity engage in more frequent face-to-face contact. However, our analysis also reveals that geographic proximity is unrelated to the presence of strong relational ties between knowledge providers and recipients. According to cluster scholars such as Saxenian (1994, p. 104), "there is little doubt that geographic proximity fosters the frequent interaction and personal trust needed to maintain these relationships." However, our results question the generalizability of such assertions.

It appears that even for firms located in close physical proximity, relational ties must be nurtured and cannot be taken for granted. As organizational scholars observe, firms need to consider both geographic closeness and relational closeness in understanding interfirm behavior (Ghemawat 2001). Our results support and enrich this observation by showing that relational ties are a key moderator for nearly every path in the chain that links geographic proximity to new product development. In summary, nearly all the effects of geographic proximity depend on strong relational ties.

Another widely held assumption among both cluster theorists and knowledge scholars is the necessity of face-to-face contact for the transfer of noncodified (tacit) knowledge. Although our results do not wholly refute such claims, they add some necessary refinement by showing that though face-to-face communication may facilitate the transfer of tacit forms of knowledge, its value in transferring the content of knowledge may be matched or exceeded by other forms of communication, such as e-mail. As Table

3 shows, both process and product knowledge content are critical to new product development because product knowledge enhances new product creativity and process knowledge enhances new product development speed. Our longitudinal data show that knowledge in noncodified form has no effect on new product creativity and hampers new product development speed. Thus, our findings suggest that e-mail and other means of electronic communication are more critical to new product development than is frequent face-to-face contact with external knowledge providers.

Recent research on virtual teams indicates that people can work effectively together without ever meeting in person (Cummings 2004; Majchrzak et al. 2004). Thus, e-mail and other forms of electronic communication may be attractive from an efficiency standpoint, regardless of geographic distance, because knowledge seekers may be willing to trade off the richness of face-to-face contact for the timeliness and low cost of an e-mail message. The knowledge benefits of e-mail provide further support for those heralding the "death of distance" and advocates of virtual technologies in general.

Two of our most surprising findings are that face-to-face communication is unrelated to process knowledge acquisition, even when there are strong relational ties with the knowledge provider (contrary to H_{4b}), and that it is negatively related to product knowledge acquisition (see Table 3). How can this be? In an attempt to answer this question, we conducted follow-up interviews with a few of our respondents. These interviews revealed three possible explanations. First, it appears that face-to-face communication with knowledge providers occurs mainly at the start and end of a project. Thus, the bulk of communication during the active R&D and knowledge acquisition phase of a project takes place at a distance. Second, respondents noted the generally unproductive nature of face-to-face meetings in a new product development context, which can apparently even be counterproductive. Third, they suggested that a high level of face-to-face contact could be a sign of a troubled relationship (i.e., one in which little exchange of product knowledge takes place). These possibilities lend further support to the primacy of e-mail as a means to acquire relevant new product-related knowledge.

Managerial Implications

High-tech firms that want to enhance their new product development outcomes can draw several insights from our research. First, in contrast with the recommendations of cluster advocates about the importance of geographic proximity, our results suggest that there is no magic that stems automatically from being located near other firms or research institutions in the same industry. Instead, a firm must first develop strong relationships with key knowledge providers to gain access to knowledge, regardless of whether these organizations are near or far. In the absence of close relationships, simply being located in close physical proximity to a knowledge provider does not lead to enhanced communication, improved knowledge acquisition, or better new product outcomes. Geographic proximity may offer an opportunity for relationship development, but this opportunity must be acted on to provide benefits. Therefore, a key managerial priority should be to develop and nurture relationships with potential knowledge providers regardless of their physical location.

Second, after firms establish close relations (at any distance), e-mail can be an effective and efficient means for acquiring both product and process knowledge. As we previously noted, some of our respondents revealed that the socially laden nature of face-to-face meetings can actually be counterproductive. In contrast, e-mail appears to help focus communication on the business at hand, thus resulting in more effective transfer of knowledge that is useful for new product development. The relatively impersonal nature of e-mail may provide added efficiency and clarity by avoiding the symbolic and social barriers that often accompany face-to-face interactions (Durrance 1998; Trevino, Lengel, and Daft 1987). This efficiency advantage of electronic communication should further increase as instant messaging and other interactive technologies become more widely used.

Limitations and Future Research Directions

Our conceptualization and measurement assume that face-to-face communication enables a rich and interactive exchange of information in real time, whereas e-mail communication is leaner, less interactive, and off-line in nature. This represents an important limitation of our current study; richness is not only inherent in a communication medium but also dependent on contextual factors such as the nature of interactions between the sender and the receiver and the meanings ascribed to them (Lee 1994). Further research could add value by exploring the nuances of these modes of communication in the context of new product development.

In this study, we focused on one important aspect of tacit knowledge: the degree of tacitness (i.e., noncodification) of information acquired from the knowledge provider; however, this study did not directly assess other aspects, such as the absolute quantity of information acquired in tacit form. Because e-mail communication in our sample was more frequent than face-to-face meetings, the (unmeasured) amount of tacit information acquired may have been small compared with the amount of codified information received. Different respondent interpretations of this measure may have led to the underreporting of the tacitness of information acquired and perhaps may have contributed to the nonsignificant effects of tacit knowledge on new product creativity and development speed, contrary to our predictions in H_7 and H_{10}.

Another limitation of our work is its focus on optics-related firms. Although our sample covers applications in diverse product subcategories, a study that covers a broader spectrum of industries would enable researchers to test the generalizability of our findings. Perhaps geographic proximity plays a more important role in the establishment of relational ties and the development of new products in lower-technology industries, such as furniture or textile manufacturing.

Further research could also add value by expanding and enriching our measures of new product outcomes. Our use of survey self-reports of new product creativity and speed provides snapshots of these processes at individual times. It would be valuable to supplement these snapshots with either ethnographic accounts of the role of geographic proximity in new product development as these processes unfold in real time or more precise accounts of proximity's impact on actual (rather than perceived) new product outcomes. Our examination of the benefits of geographic proximity is also limited by our focus on knowledge acquisition. Further research should examine other potential benefits of being located near other organizations in the same industry, such as access to a ready supply of qualified workers and the prestige of being a member of a well-known cluster.

Appendix
Measures

Mode of Communication (Frequency)

We adapted the measure for mode of communication from the work of Hansen (1999) and Mohr, Fisher, and Nevin (1996). We measured it on a five-point scale ranging from 1 ("less than once a week") to 5 ("more than once a day").

1. *Face-to-face.* Over the past six months, how many times during the average workweek did *you personally* communicate directly with scientists, engineers, or technical workers from this organization *in person*?
2. *E-mail.* Over the past six months, how many times during the average workweek did *you personally* communicate directly with scientists, engineers, or technical workers from this organization by *e-mail*?

Tacit Knowledge Form

We adapted the measure for tacit knowledge from the work of Hansen (1999). We measured it on a seven-point scale.

1. Considering all the types of technical information that you received from this organization (as indicated on the previous page), how well documented was this information? (reversed) (1 = "it was not well documented," 4 = "it was somewhat well documented," and 7 = "it was very well documented")
2. How much of this technical information was thoroughly explained to your firm in writing (i.e., written reports, manuals, faxes, e-mails, etc.)? (reversed) (1 = "none of it was," 4 = "half of it was," and 7 = "all of it was")
3. Overall, how would you describe the type of technical information that you acquired from this organization? (1 = "mainly formal reports, manuals, documents, and so forth," 4 = "half know-how and half reports and documents," and 7 = "mainly informal practical know-how, tricks of the trade")

Process Knowledge

We adapted the measure for process knowledge from the work of Rindfleisch and Moorman (2001). We measured it on a seven-point scale ranging from 1 ("low amount") to 7 ("high amount").

Please rate the *amount of new product-related information* that your firm has acquired from this organization over the past six months in the following areas:

1. Information about new manufacturing processes
2. Insights into new ways to approach product development
3. Information about new ways of combining manufacturing activities
4. Insights about key tasks involved in the production process
5. Insights into new ways to streamline existing manufacturing processes

Product Knowledge

We adapted the measure for product knowledge from the work of Rindfleisch and Moorman (2001). We measured it on a seven-point scale ranging from 1 ("low amount") to 7 ("high amount").

Please rate the *amount of new product-related information* that your firm has acquired from this organization over the past six months in the following areas:

1. Information about R&D projects conducted outside your firm
2. Research findings related to new product development
3. Information about end-user requirements
4. Information about competitors' technology

New Product Creativity

We adapted the measure for new product creativity from the work of Rindfleisch and Moorman (2001). We measured it on a seven-point semantic differential scale.

Please circle the degree to which each of the following items provides an accurate description of this new product development project over the past six months:

1. Very ordinary for our industry/very novel for our industry
2. Not offering new ideas to our industry/offering new ideas to our industry
3. Not creative/creative
4. Uninteresting/interesting
5. Not capable of generating ideas for other products/capable of generating ideas for other products
6. Not promoting fresh thinking/promoting fresh thinking

Speed of New Product Development

We adapted the measure for speed of new product development from the work of Rindfleisch and Moorman (2001). We measured it on a seven-point semantic differential scale.

Please circle the degree to which each of the following items provides an accurate description of this new product development project over the past six months:

1. Far behind our project timeline/far ahead of our project timeline
2. Slower than the industry norm/faster than the industry norm
3. Much slower than we expected/much faster than we expected
4. Slower than our typical product development time/faster than our typical product development time

Relational Tie Strength

We adapted the measure for relational tie strength from the work of Rindfleisch and Moorman (2001). We measured it on a seven-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Please rate the degree to which the following statements describe your firm's relation with this organization

1 We feel indebted to this organization for what they have done for us
2 Our interactions with this organization can be defined as "mutually gratifying"
3 Maintaining a long-term relationship with this organization is important to us
4 Our business relationship with this organization could be described as "cooperative" rather than an "arm's-length" relationship
5 We expect to be interacting with this organization far into the future

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Kwaku Atuahene-Gima

Resolving the Capability–Rigidity Paradox in New Product Innovation

Managers face an important strategic dilemma in product innovation: how to exploit existing product innovation competencies (competence exploitation) while avoiding their dysfunctional rigidity effects by renewing and replacing them with entirely new competencies (competence exploration). Although the resolution of what is termed the "capability–rigidity paradox" is considered a fundamental managerial task in enhancing product innovation outcomes and the firm's competitive advantage, it has received little research attention. The author argues and finds support that market orientation provides a key to this paradox. Specifically, customer and competitor orientations ensure simultaneous investments in exploiting existing product innovation competencies and exploring new ones. The author also finds that the effects of these orientations on competence exploitation and exploration are differentially moderated by interfunctional coordination and perceived market opportunity. Regarding outcomes, competence exploitation and exploration have opposing relationships with incremental and radical innovation performance. However, the relationship between competence exploration and radical innovation performance is positively moderated by interfunctional coordination. Overall, the results of this study suggest that market orientation can prevent a firm from becoming operationally efficient but strategically inefficient by simultaneously engendering competence exploitation and exploration, which are differentially related to incremental and radical product innovation outcomes.

In the development of new products, firms face an important strategic dilemma. Exploiting existing competencies may provide short-term success, but competence exploitation can become a hindrance to the firm's long-term viability by stifling the exploration of new competencies and the development of radical innovations (Levinthal and March 1993; March 1991). Although many firms are adept at exploiting existing capabilities, they appear to falter in simultaneously developing new ones (Dougherty 1992; O'Reilly and Tushman 2004). Leonard-Barton (1992) aptly terms this phenomenon the "capability–rigidity paradox."[1] Many business observers (e.g., Abell 1999; Williamson 1999) view the resolution of this paradox as perhaps the toughest managerial challenge in sustaining a firm's competitive advantage. Although the literature is replete with warnings about the dire consequences for firms unable to resolve this paradox, to date, attempts to find a solution have been limited to anecdotal reports (e.g., Abell 1999) and a few case studies (e.g., Danneels 2002; Dougherty 1992; Leonard-Barton 1992).

This study attempts to resolve this paradox and, in doing so, addresses four research gaps in the extant marketing literature. First, the essence of the capability–rigidity paradox is that competence exploitation tends to crowd out competence exploration (Leonard-Barton 1992). Thus, the key to the paradox may be organizational factors that can ensure simultaneous investments in both the exploitation of existing product innovation capabilities and the exploration of new ones. The firm's market orientation appears to be such a factor because scholars (e.g., Day 1994, p. 41; Hurley and Hult 1998, p. 47) posit that market orientation is a precursor to capability building. Reports of how DuPont overcame its problems in developing radical innovations (*BusinessWeek* 2003b, p. 103), Woolworth's renewed ability to respond to upstart competitors such as Wal-Mart (Williamson 1999, pp. 119–20), and Hewlett-Packard's leadership position in the printer business (*BusinessWeek* 2003a) appear to concur with this proposition. In each case, the firm's resource allocations to exploit existing capabilities and to develop new ones were affected substantially by its knowledge of current and future customers and competitors.

Second, despite market orientation's potential to unlock one of the most intriguing managerial dilemmas in product innovation, previous studies have examined its effect on the firm's innovation performance with little attention to the possible mediation by product innovation competence exploitation and exploration (e.g., Atuahene-Gima 1995, 1996; Baker and Sinkula 1999; Lukas and Ferrell 2000). In

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[1] In line with other researchers (e.g., Danneels 2002; Day 1994; Grant 1996; Henderson and Cockburn 1994), I use the word "competence" interchangeably with "capability."

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related research, Noble, Sinha, and Kumar (2002) find that exploitation mediates the link between competitor orientation and firm performance, and Han, Kim, and Srivastava (1998) show that innovativeness mediates the link between customer orientation and performance but not between competitor orientation or interfunctional coordination and performance However, these studies did not examine exploitation and exploration simultaneously Noble, Sinha, and Kumar (2002, pp 35–36) argue that high-performing firms not only gather market intelligence but also translate knowledge into learning and insightful strategic actions Thus, they speculate that because exploration is a more active process involving programmatic discovery of new resources and technologies, it may play a more important role than exploitation in the transition of customer and competitor orientations to firm performance With a focus on product innovation, in this study, I highlight the previously overlooked differential mediating roles of competence exploitation and exploration because findings could provide support for the central role that marketing theory ascribes to innovation capabilities in the link between market orientation and innovation performance (Day 1994, Hurley and Hult 1998) For managers, support for a full or partial mediation will provide evidence of the differential power of the facets of market orientation on innovation competencies, thus ensuring better resource allocation decisions

Third, resolving the capability–rigidity paradox also requires insights into why firms that have analogous customer and competitor knowledge exhibit differential capacities for competence exploitation and exploration Grant (1996, p 380) notes that the source of competitive advantage is how knowledge is coordinated and integrated among functional units rather than knowledge itself This observation implies the need to examine the moderating role of the firm's coordination mechanisms in its use of customer and competitor knowledge Although interfunctional coordination is a key knowledge integration mechanism (Gatignon and Xuereb 1997), few studies examine how it facilitates the effects of customer and competitor orientations on the firm's product innovation competencies

Relatedly, Day (1994) observes that managers' mental models provide a shared ideology that enables collective interpretation of market reality, and thus these models play a key role in managerial decisions about capability enhancement and renewal This insight resonates with research showing that managers are more willing to invest resources in new strategic initiatives when the market situation is interpreted as an opportunity rather than as a threat (Dutton and Jackson 1987, White, Varadarajan, and Dacin 2003) Despite its salience, no studies report on how managers' interpretations of the market situation influence their decisions on product innovation competencies I contend that the differential ability of firms to transform analogous customer and competitor knowledge into product innovation competencies lies in their differential interfunctional coordination abilities and in the interpretation of the market situation as an opportunity rather than as a threat (i e , perceived market opportunity)

Fourth, competence exploitation and exploration are believed to have direct but opposing and interactive relationships with inc
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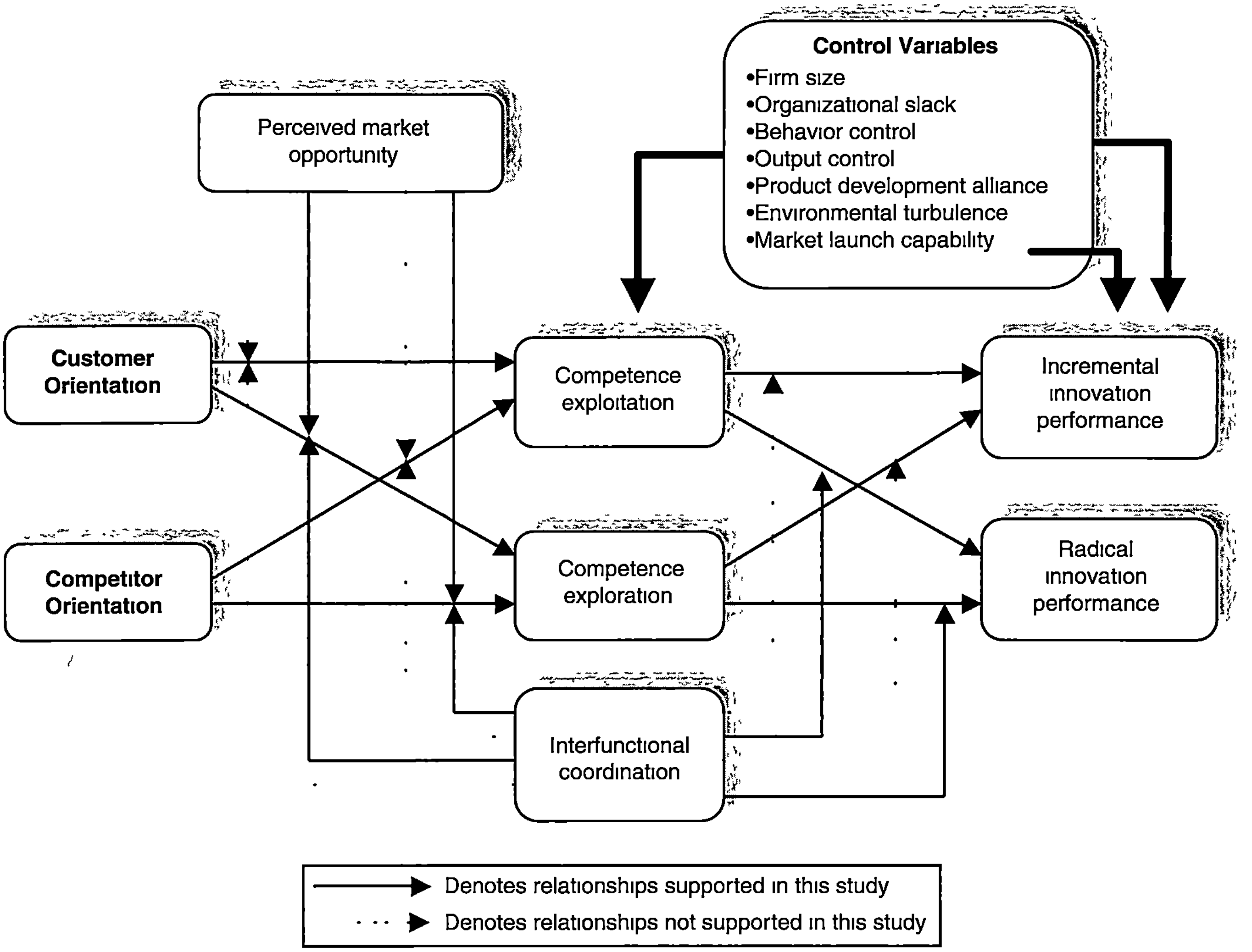
1996, Henderson and Cockburn 1994) observe that superior resources are converted into positional advantages through the firm's knowledge integration processes Thus, I suggest that interfunctional coordination not only transforms customer and competitor orientations into product innovation capabilities but also plays the dual role of integrating innovation capabilities to facilitate incremental and radical innovations Figure 1 presents the conceptual model I tested to address the previously identified research gaps

Theory Development

Successful product innovation demands that a firm must exploit its existing competencies while trying to avoid their dysfunctional rigidity effects by renewing and replacing them with entirely new ones (Leonard-Barton 1992) A competence or capability refers to the knowledge, skills, and related routines that constitute a firm's ability to create and deliver superior customer value (Day 1994, p 38) Thus, it reflects behavior processes that engender procedural knowledge or skill (i e , knowing how to do something) (Kogut and Zander 1992) This definition reflects the notion that competencies are developed through path dependent learning processes (Henderson and Cockburn 1994) In this study, competence exploitation refers to the tendency of a firm to invest resources to refine and extend its existing product innovation knowledge, skills, and processes Its aims are greater efficiency and reliability of existing innovation activities In contrast, competence exploration refers to the tendency of a firm to invest resources to acquire entirely new knowledge, skills, and processes Its objective is to attain flexibility and novelty in product innovation through increased variation and experimentation This distinction draws on March's (1991, p 85) view of exploitation as "the refinement and extension of existing competencies, technologies, and paradigms" and exploration as "experimentation with new alternatives that have returns that are uncertain, distant, and often negative " Exploitation and exploration reflect an organizational attitude that manifests in investment decisions (Chandy and Tellis 1998, p 477) Because the benefits of exploration are distant and uncertain, managers tend to put more resources into exploitation than into exploration (March 1991) Thus, the key to the capability–rigidity paradox may be factors that can prevent exploitation from crowding out exploration so that the firm can develop incremental and radical innovations simultaneously The resource-based view (RBV) of

FIGURE 1
Conceptual Model of the Relationships Among Market Orientation, Product Innovation Competencies, and Innovation Performance


Control Variables
•Firm size
•Organizational slack
•Behavior control
•Output control
•Product development alliance
•Environmental turbulence
•Market launch capability
Perceived market opportunity
Customer Orientation
Competitor Orientation
Competence exploitation
Competence exploration
Interfunctional coordination
Incremental innovation performance
Radical innovation performance
Denotes relationships supported in this study
Denotes relationships not supported in this study

Notes For the sake of clarity, I do not include the interaction effects of competence exploitation and exploration on incremental and radical innovation performance

the firm and marketing theory suggest that the components of market orientation play this role

Effects of Customer and Competitor Orientations on Product Innovation Competence

The first component of market orientation, customer orientation, involves generating information about current and future customers and disseminating and using it within the firm The second, competitor orientation, refers to generating information about current and future competitors and disseminating and using it within the firm (Jaworski and Kohli 1993, Narver and Slater 1990) The RBV argues that the performance differences among firms result from knowledge resources that can be used to create idiosyncratic, inimitable internal capabilities (Amit and Schoemaker 1993, Barney 1991) Managers exercise discretion over the use of firm resources by making decisions to convert them into superior products and services (Penrose 1959) Thus, Kogut and Zander (1992, p 384) note that "the theoretical challenge is to understand the knowledge base of the firm as leading to a set of capabilities that enhance the chances of growth and survival" Therefore, according to the RBV, competitive advantage results not from the mere possession and control of rare and valuable resources but rather from the idiosyncratic internal competencies by which a firm translates its resources into superior customer value (Amit and Schoemaker 1993, Barney 1991) Such internal competencies sustain competitive advantage because they are difficult for competitors to imitate (Reed and DeFillippi 1990)

Market knowledge is a resource with which managers can uncover current capability deficiencies in the firm and emerging market opportunities that may require the development of new capabilities Thus, the RBV scholars affirm that a firm's internal capabilities are a function of its interactions with the market, the opportunities available to it, and the limitations of its current capabilities (Schroeder, Bates, and Junttila 2002, p 106) For this reason, Cockburn, Henderson, and Stern (2000) observe that managers are sensitive to environmental cues such that the origins of the firm's competitive advantage may lie in their ability to invest in appropriate internal competencies in response to those cues Barney and Zajac (1994, p 6) echo this view, noting that "as firms learn how to overcome specific competitive challenges, they develop potentially valuable resources and capabilities" Levinthal and Myatt (1994, p 46) also explain that how a firm's capabilities evolve is intimately linked with its knowledge about how the competitive markets it serves evolve

Marketing theory coincides with these tenets of the RBV For example, Day's (1994, p 41) thesis on capabilities of market-driven firms posits that the superior market-sensing capabilities of firms "inform and guide both spanning and inside-out capabilities," such as product development capabilities Several other studies note that market orientation plays a role in building firm capabilities for innovation (Atuahene-Gima and Ko 2001, Hurley and Hult 1998, Slater and Narver 1995, Sorescu, Chandy, and Prabhu 2003) and for dealing with economic crisis (Grewal and Tansuhaj 2001) Some scholars suggest that a focus on current market conditions could lead a firm into a "competency trap" by diverting attention away from emerging customers and competitors (Christensen and Bower 1996) However, Barnett, Greve, and Park (1994, p 12) argue that an awareness of changing market conditions "can cause current practices in the organization to be considered inadequate Hence, a firm that faces competition is more likely to refine current routines or *to make innovations*" (emphasis added) In particular, market-oriented firms not only respond to current market conditions but also anticipate future market conditions (Chandy and Tellis 1998, Day 1994, Kohli and Jaworski 1990, Slater and Narver 1995) With deeper knowledge of the current and future customers and competitors, managers become dissatisfied with the inadequacies of current capabilities, which results in investments in new capabilities (Huff, Huff, and Thomas 1992) and insightful strategic change (Noble, Sinha, and Kumar 2002, p 35) In brief, both the RBV and marketing theory indicate that a firm cannot exploit its existing innovation capabilities or develop new ones without knowledge of market conditions Thus

H_1 Customer orientation is positively related to (a) competence exploitation and (b) competence exploration

H_2 Competitor orientation is positively related to (a) competence exploitation and (b) competence exploration

The moderating role of interfunctional coordination This construct refers to the degree to which the functional units in the firm interact, communicate, and coordinate with one another to collect and use market information (Jaworski and Kohli 1993, Narver and Slater 1990) Knowledge has attributes (e g , complexity, tacitness) that make it difficult to create and transfer it within the firm (Galunic and Rodan 1998, Kogut and Zander 1992, Szulanski 1996) Thus, Grant (1996) and other researchers (e g , Zahra, Ireland, and Hitt 2000, Zahra and Nielson 2002) note that the conversion of knowledge into value-creating processes depends on the firm's knowledge integration mechanisms Interfunctional coordination enables firms to synthesize, integrate, and apply current and newly acquired external knowledge (Henderson and Cockburn 1994, Kogut and Zander 1992) Marketing scholars acknowledge the internal stickiness of market knowledge and highlight the integrative role of interfunctional coordination (Day 1994, p 44, Olson, Walker, and Ruekert 1995) Building on this literature, I suggest that interfunctional coordination moderates the effects of customer and competitor orientations on product innovation competencies for two reasons First, it results in lateral communication that deepens knowledge flows across functional boundaries By enhancing efficient knowledge exchange, it ensures that the firm generates new and broadened insights from market knowledge through constant reinterpretation of each functional perspective (Grant 1996, Kohli and Jaworski 1990) Second, interfunctional coordination builds trust among different functional units, creating conditions for harnessing the diverse functional perspectives in the use of market information (Jaworski and Kohli 1993, Narver and Slater 1990) This permits a critical, unbiased assessment of the firm's product innovation competencies and enables the cross-fertilization of ideas that ensure better decisions about refining existing competencies and developing new ones (Zahra, Ireland, and Hitt 2000)

H_3 The positive effect of customer orientation on (a) competence exploitation and (b) competence exploration is stronger when interfunctional coordination is high than when it is low

H_4 The positive effect of competitor orientation on (a) competence exploitation and (b) competence exploration is stronger when interfunctional coordination is high than when it is low

The moderating role of perceived market opportunity This construct refers to the tendency of managers to interpret a market situation as having positive rather than negative implications for the firm, as representing a potential gain rather than loss, and as being controllable rather than uncontrollable Opportunities and threats are the mental schemata that commonly underlie managers' interpretations of the market environment Dutton and Jackson (1987, p 80, emphases in original) describe a threat as a "*negative* situation in which *loss* is likely and over which one has relatively *little control*," and an opportunity as a "*positive* situation in which *gain* is likely and over which one has a fair amount of *control*" Because a market situation typically involves both threats and opportunities, it is often defined by the three continua positive–negative, gain–loss, and controllable–uncontrollable (Thomas, Clark, and Gioia 1993), these are reflected in the preceding definition of perceived market opportunity

Mental models shape managerial interpretations of a market situation, thereby significantly influencing how a firm's market orientation affects the development and use of its capabilities (Day 1994, p 43) Managers who perceive threats rather than opportunities in the market tend to become risk averse and respond to market events by focusing on current domains in which they perceive greater control in order to improve efficiency and reliability of operations (Thomas, Clark, and Gioia 1993) In contrast, managers who perceive market opportunities engage in actions that involve greater risk and resource commitments (Dutton and Jackson 1987) It follows that perceived market opportunity is more likely to enhance competence exploration than competence exploitation In addition, perceived market opportunity is more likely to amplify the positive effect of customer and competitor orientations on competence exploration than on competence exploitation The logic is that such a mental model imbues managers with greater boldness and proactiveness, thus encouraging a more critical assessment of the efficacy of the firm's current competencies Interpretation of a market situation as an opportunity also helps engender greater support in the firm for initiatives to overcome its competence deficiencies to take advantage of the opportunity discovered (White, Varadarajan, and Dacin 2003)

H_5 The positive effect of customer orientation (a) on competence exploitation is weaker when the perceived market opportunity is high than when it is low and (b) on competence exploration is stronger when the perceived market opportunity is high than when it is low

H_6 The positive effect of competitor orientation (a) on competence exploitation is weaker when the perceived market opportunity is high than when it is low and (b) on competence exploration is stronger when the perceived market opportunity is high than when it is low

Effects of Competence Exploitation and Exploration on Innovation Performance

Resolving the capability–rigidity paradox also requires an assessment of the effects of the firm's product innovation competencies on its performance in incremental and radical innovations (Dougherty 1992, Leonard-Barton 1992) Performance refers to the number of new product innovations introduced by the firm, percentage of sales of new product innovations, and the relative frequency of introducing innovations compared with competitors Incremental innovations are product improvements and line extensions that are usually aimed at satisfying the needs of existing customers They involve small changes in technology and little deviation from the current product-market experiences of the firm In contrast, radical innovations involve fundamental changes in technology for the firm, typically address the needs of emerging customers, are new to the firm and/or industry, and offer substantial new benefits to customers (Chandy and Tellis 1998) Exploiting existing competencies increases efficiency and productivity through the search for and use of solutions to customer problems in the neighborhood of the firm's current experience (March 1991) Thus, competence exploitation increases incremental innovations and may hinder radical innovations because it focuses attention on variety reduction and productivity improvements in existing products (Christensen and Bower 1996, Danneels 2002) Competence exploration involves experimentation that focuses on emerging markets and technologies for ideas to produce radical rather than incremental innovations that offer entirely new value for customers Leonard-Barton (1992) finds that current competencies lead to new product projects that align with those competencies and hinder those lacking such alignment

H_7 Competence exploitation is (a) positively related to incremental innovation performance and (b) negatively related to radical innovation performance

H_8 Competence exploration is (a) negatively related to incremental innovation performance and (b) positively related to radical innovation performance

March (1991) argues for a balance between exploitation and exploration tendencies, cautioning that a firm that is too oriented toward exploitation is likely to suffer because of a lack of novel ideas Similarly, a firm that is too oriented toward exploration suffers the costs of experimentation without gaining many of its benefits because it exhibits too many new and risky ideas and little refinement of its existing competencies This notion of balance reflects the RBV tenet that competitive advantage is a function of the unique bundling of heterogeneous resources and capabilities that increases the complexity and ambiguity of organizational actions (Amit and Schoemaker 1993, Barney 1991) For example, according to Reed and DeFillippi (1990, p 93, emphasis added), "ambiguity may be derived from the complexity of skills and/or resource interactions within competencies and *from interaction between competencies*" From this perspective, the interaction between competence exploitation and exploration reflects a complex capability whose value exists only in their relationship (Colbert 2004) Although each of competence exploitation and exploration may affect a firm's innovation performance, their interrelationship provides an additional source of competitive advantage beyond those provided by each one individually (see Colbert 2004, p 349) This notion of balance is often interpreted as implying that firms need to combine high exploitation with high exploration to achieve superior performance However, this overlooks March's (1991) caution that both exploitation and exploration have inherent limitations Indeed, exploitation and exploration thrive under different organizational conditions, which makes their combination difficult (O'Reilly and Tushman 2004)

Thus, Nerkar (2003) argues that the notion of balance could also imply that a high (low) exploitation needs to be coupled with a low (high) exploration to enhance firm performance Too much exploration could be costly because the firm may move from one new idea to the next without exploiting prior learning and experience (Levinthal and March 1993, March 1991) In addition, novel products may be underdeveloped, and their fit with customer needs may be unknown A dose of exploitation tempers these potential excesses of exploration by helping the firm evaluate and assimilate new ideas more effectively (Danneels 2002) Similarly, too much competence exploitation involves costs because the firm lacks the novel skills and knowledge to generate new insights in product innovation (March 1991) Overcoming these costs requires a dose of exploration (March 1991, p 71) Given the different notions of balance, I posit the following nondirectional hypotheses

H_9 The interaction between competence exploration and exploitation is related to (a) incremental innovation performance and (b) radical innovation performance.

The moderating role of interfunctional coordination. The RBV suggests that it is the heterogeneity not only of competence endowments but also of competence deployment abilities that accounts for differences in competitive advantage among firms (Barney 1991). The competitive advantage that a firm's capabilities confer depends largely on the efficiency with which they are integrated (Day and Wensley 1988; Grant 1996). For example, Henderson and Cockburn (1994, p. 65) suggest that a firm's competitive advantage is enhanced when its "component competencies" (i.e., knowledge and skills) are combined with "architectural competencies" (i.e., the ability to coordinate an extensive flow of information within the firm to use component competencies). Without such coordination, conflicts and mistrust among functions stand in the way of a firm's effective use of its capabilities (Zahra and Nielson 2002). Interfunctional coordination reduces cross-functional conflict and promotes commitment and the efficient combination of different functional insights that are necessary for turning a firm's competencies into superior customer value (Kohli and Jaworski 1990; Olson, Walker, and Ruekert 1995). Indeed, Gatignon and Xuereb (1997) find that interfunctional coordination enables the firm to use its resources to achieve desired innovation characteristics and outcomes. Thus, I posit that interfunctional coordination strengthens the positive and weakens the negative aspects of competence exploitation and exploration on incremental and radical innovation performance. Formally,

H_{10}: The positive effect of competence exploitation on incremental innovation performance is stronger when interfunctional coordination is high than when it is low.

H_{11}: The negative effect of competence exploitation on radical innovation performance is weaker when interfunctional coordination is high than when it is low.

H_{12}: The negative effect of competence exploration on incremental innovation performance is weaker when interfunctional coordination is high than when it is low.

H_{13}: The positive effect of competence exploration on radical innovation performance is stronger when interfunctional coordination is high than when it is low.

Other Potential Antecedent Factors

In addition to the previously described factors, product innovation competencies and outcomes may be affected by several other firm-specific and environmental factors. For example, firms with domain defensive strategies tend to defend their existing markets by preserving traditional product lines, suggesting a tendency for competence exploitation and incremental innovation. In contrast, firms that pursue domain offensive strategies have high first-mover predispositions and thus a penchant for new competencies to develop radical innovations (Abell 1993, 1999). The firm's willingness to cannibalize (i.e., its propensity to reduce the actual or potential value of its investments in current products), its incumbency, and the degree of dominance of the firm in the industry all may influence the firm's tendencies for competence exploitation and exploration and for incremental and radical innovations (Chandy, Prabhu, and Antia 2003; Chandy and Tellis 1998, 2000).

The firm's new product control systems are particularly salient for innovation competencies and their outcomes (e.g., Cardinal 2001; Olson, Walker, and Ruekert 1995) because they affect managers' assessment of performance risk (Atuahene-Gima and Li 2002; Hitt et al. 1996). Specifically, output control (the measurement and reward of project teams based on results achieved) encourages low-risk activities, such as competence exploitation and incremental innovations. This is because project members bear a disproportionate share of the project's performance risk and thus develop risk-averse behaviors. In contrast, behavior control (the measurement and reward for the achievement of process and strategic objectives rather than their outcomes) engenders exploration and radical innovations by encouraging risk-seeking behaviors (Hitt et al. 1996). Factors such as firm size and slack reflect greater resources and market power to exploit existing competencies, build new ones, and develop innovations (Chandy and Tellis 1998; Gatignon and Xuereb 1997). In addition, product development alliances also affect a firm's innovation capabilities and success by exposing it to external knowledge and opportunities (Li and Atuahene-Gima 2002; Rindfleisch and Moorman 2001).

Environmental turbulence reflects rapid market and technological changes that managers perceive as hostile and stressful conditions for their firm. Turbulence often renders current firm competencies obsolete (Tushman and Nelson 1990), leading managers to upgrade existing capabilities and develop entirely new ones (Day 1994). Finally, market launch capability, which refers to the firm's ability to design and implement new product launch activities effectively, should affect innovation performance (Day and Wensley 1998). Although this review shows several potential control factors in testing the proposed model, Figure 1 shows the variables for which data were available.

Research Methods

Sample and Data Collection

China is an ideal context for this study because the complexity and dynamism of this transitional environment means that firms must confront the challenges of new (often dysfunctional) competition and also collapsing capabilities (Li and Atuahene-Gima 2001, 2002). Thus, scholars suggest that success in China's market requires both prospector (exploration) and defender (exploitation) orientations (Luo and Park 2001, p. 145). As a testimony to the importance of market orientation in competence exploitation and exploration, Luo (2002, p. 60) reports that Kodak's success in China is due to the adaptation of its existing competencies and the development of new ones to respond to market changes.

The instrument was prepared in English and then translated into Chinese. It was checked for accuracy following the conventional back-translation process. It was tested with 25 managers who had at least three years' business experience in China to ensure the face validity and appropriateness of the measures in the Chinese context The sample was 500 firms located in Guangdong province, they were randomly selected from a mailing list of 1650 electronics firms provided by a local consulting firm An interviewer scheduled appointments with two key informants in each firm, presented the questionnaire to them, and collected the questionnaire after completion In China, this procedure is critical for ensuring quality control and reliability of the data (Li and Atuahene-Gima 2001, 2002)[2] I received 227 usable questionnaires for a participation rate of 45 4% Given the on-site data collection, a test of response bias by comparing early and late respondents was not appropriate I compared a sample of participating and nonparticipating firms The analysis of variance test was not significant for firm age (F = 1 05), number of employees (F = 98), and sales (F = 1 32), suggesting no response bias

To assess informants' quality, they indicated on a seven-point scale their degree of knowledge (1 = "very limited knowledge," 7 = "very substantial knowledge") about the issues under study The means for the first and second informants were 6 22 and 6 31, respectively The first informant (marketing managers 75%, chief executive officers [CEOs] 20%, and research and development [R&D] managers 5%, mean industry experience = 12 50 years, mean firm experience = 9 45 years) gave data on customer and competitor orientations, incremental and radical innovations, environmental turbulence, market launch capability, and product development alliances The second informant (marketing managers 25%, CEOs 60%, and R&D managers 15%, mean industry experience = 13 97 years, mean firm experience = 10 69 years) provided data on competence exploitation and exploration, interfunctional coordination, perceived market opportunity, slack, firm size, output, and behavior controls This procedure separates the informants for the measures for the main predictor and criterion variables, thus eliminating common method bias (Slater and Atuahene-Gima 2004) I pooled the data because the analysis of variance test showed that the constructs did not differ significantly ($p >$ 10) among different respondents

Measures and Validation

Table 1 reports the measures and their sources I ran two confirmatory factor analyses, grouping measures of theoretically related constructs to ensure acceptable parameter estimate-to-observation ratios The fit indexes reported in Table 1 indicate that each model fits the data reasonably well All the t-values for the estimated factor loadings for the theoretical constructs are significant, suggesting convergent and discriminant validity I conducted a series of confirmatory factor analyses to test whether a two-factor model of their measures would fit better than a one-factor model for every pair of constructs (Bagozzi, Yi, and Philips 1991) As further evidence of the discriminant validity of the measures, in each case, the chi-square for the constrained model was significantly greater than the chi-square for the unconstrained model[3] The composite reliability for each construct is greater than the recommended 70 All but competence exploitation met the required 50 threshold for average variance extracted

To assess interrater reliability for the measures, participating firms were interviewed a second time 14 months after the primary survey Data were received from 127 firms The responses of the first and second respondent in the second survey were correlated with those of the second and first respondent in the primary survey Interrater reliability for the variables ranged from r = 95 ($p <$ 01) for environmental turbulence to r = 63 ($p <$ 01) for output control These results provide evidence of the reliability of the data obtained in the primary survey[4]

Analysis and Results

I used the data obtained from the first (primary) survey for the analyses Table 2 presents the correlation matrix and descriptive statistics of the measures Examination of the skewness and kurtosis values for all the variables (see Table 2) indicated that firm size was skewed I transformed firm size by taking its logarithm to ensure normal distribution I

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[2] The interviewer returned each completed questionnaire along with the business card of the respondent This procedure facilitates (1) quality control by allowing for independent verification through telephone calls to ascertain that the informants were interviewed and that they completed the questionnaires and (2) the delivery of the summary of the research results to informants

[3] The results of the most closely related theoretical constructs in the study are as follows customer orientation versus competitor orientation (constrained model χ^2 = 457 16, degrees of freedom [d f] = 44, unconstrained model χ^2 = 136 52, d f = 43, χ^2 difference = 320 64, d f = 1), customer orientation versus incremental innovation performance (constrained model χ^2 = 246 91, d f = 35, unconstrained model χ^2 = 91 78, d f = 34, χ^2 difference = 155 13, d f = 1), customer orientation versus radical innovation performance (constrained model χ^2 = 337 55, d f = 44, unconstrained model χ^2 = 121 03, d f = 43, χ^2 difference = 216 52, d f = 1), competitor orientation versus incremental innovation performance (constrained model χ^2 = 197 75, d f = 14, unconstrained model χ^2 = 35 76, d f = 13, χ^2 difference = 161 99, d f = 1), competitor orientation versus radical innovation performance (constrained model χ^2 = 361 82, d f = 20, unconstrained model χ^2 = 30 20, d f = 19, χ^2 difference = 331 62, d f = 1), perceived market opportunity versus interfunctional coordination (constrained model χ^2 = 633 83, d f = 35, unconstrained model χ^2 = 73 86, d f = 34, χ^2 difference = 559 97, d f = 1), competence exploitation versus competence exploration (constrained model χ^2 = 567 81, d f = 28, unconstrained model χ^2 = 77 67, d f = 27, χ^2 difference = 490 14, d f = 1), incremental versus radical innovation performance (constrained model χ^2 = 163 49, d f = 14, unconstrained model χ^2 = 17 76, d f = 13, χ^2 difference = 145 73, d f = 1), and behavior control versus output control (constrained model χ^2 = 212 46, d f = 9, unconstrained model χ^2 = 13 76, d f = 8, χ^2 difference = 198 70, d f = 1) All chi-square differences are significant at the 001 level

[4] The interrater reliability for each construct measured with multiple items are as follows customer orientation (r = 89, $p <$ 01), competitor orientation (r = 82, $p <$ 01), interfunctional coordination (r = 73, $p <$ 01), perceived market opportunity (r = 87, $p <$ 01), competence exploitation (r = 79, p = 01), competence exploration (r = 77, $p <$ 01), incremental innovation performance (r = 67, $p <$ 01), radical innovation performance (r = 88, $p <$ 01), organizational slack (r = 86, $p <$ 01), environmental turbulence (r = 95, $p <$ 01), behavior control (r = 69, $p <$ 01), output control (r = 63, $p <$ 01), product development alliance (r = 81, $p <$ 01), and market launch capability (r = 87, $p <$ 01)

TABLE 1
Confirmatory Factor Analysis of Measures

Construct and Source Model 1	Operational Measures of Construct Model Fit Indexes χ^2 = 662.89, d.f. = 423; χ^2/d.f. = 1.57; RMSEA = .04, GFI = 90, CFI = .93, and NNFI = .92	SFL[a]	t-Value
Customer orientation[b] (Narver and Slater 1990)	1 We regularly meet customers to learn about their current and potential needs for new products	68	12 10
	2 We constantly monitor and reinforce our understanding of the current and future needs of customers	80	13 93
	3 We have a thorough knowledge about emerging customers and their needs	85	10 52
	4 Information about current and future customers is integrated in our plans and strategies	65	10 52
	5 We regularly use research techniques such as focus groups, surveys, and observations to gather customer information	82	14 50
	6 We have developed effective relationships with customers and suppliers to fully understand new technological development that affect customers' needs	51	7 72
	7 We systematically process and analyze customer information to fully understand their implications for our business	76	12 94
Competitor orientation[b] (Narver and Slater 1990)	1 We regularly collect and integrate information about the products and strategies of our competitors	55	8 88
	2 We systematically collect and analyze information about potential competitor activities	61	9 13
	3 Managers in this firm regularly share information about current and future competitors within the company	69	11 51
	4 Our knowledge of current and potential competitors' strengths and weaknesses is very thorough	75	12 94
Interfunctional coordination[b] (Narver and Slater 1990, Zahra and Nielson 2002)	1 The activities of functional units are tightly coordinated to ensure better use of our market knowledge	60	8 99
	2 Functions such as R&D, marketing, and manufacturing are tightly integrated in cross-functional teams in the product development processes	74	10 89
	3 R&D and marketing and other functions regularly share market information about customers, technologies, and competitors	72	10 78
	4 There is a high level of cooperation and coordination among functional units in setting the goals and priorities for the organization to ensure effective response to market conditions	64	9 97
	5 Top management promotes communication and cooperation among R&D, marketing, and manufacturing in market information acquisition and use	63	9 37
	6 People from marketing, R&D, and other functions play important roles in major strategic market decisions [f]		
Incremental innovation performance[c] (Chandy and Tellis 1998)	1 % of total sales from incremental product introduced by your firm in the last three years (less than 5%, 5%–10%, 11%–15%, 16%–20%, >20%)	89	13 25
	2 This firm frequently introduced incremental new products into new markets in the last three years (1 = "strongly disagree," 5 = "strongly agree")	59	7 70
	3 Compared to your major competitor, this firm introduced more incremental new products in the last three years (1 = "strongly disagree," 5 = "strongly agree")	67	9 76
	4 Number of incremental products introduced by the firm in the last three years (converted into five-point scale 1–10, 10–15, 16–30, 31–75, more than 75) [f]		
Radical innovation performance[c] (Chandy and Tellis 1998)	1 % of total sales from radical product introduced by your firm in the last three years (less than 5%, 5%–10%, 11%–15%, 16%–20%, >20%)	81	13 83
	2 Number of radical products introduced by the firm in the last three years (converted into a five-point scale 0–3, 4–6, 7–9, 10–12, >12)	77	10 01
	3 Compared to your major competitor, this firm introduced more radical new products in the last three years (1 = "strongly disagree," 5 = "strongly agree")	78	11 56
	4 This firm frequently introduced radical new products into markets totally new to the firm in the last three years (1 = "strongly disagree," 5 = "strongly agree")	88	14 02

TABLE 1
Continued

Construct and Source Model 1	Operational Measures of Construct Model Fit Indexes: $\chi^2 = 662.89$, d.f. = 423; χ^2/d f. = 1.57; RMSEA = .04, GFI = .90, CFI = .93, and NNFI = .92	SFL[a]	t-Value
Competence exploitation[d] (Zahra, Ireland, and Hitt 2000)	Over the last three years, to what extent has your firm		
	1 Upgraded current knowledge and skills for familiar products and technologies?	87	16 49
	2 Invested in enhancing skills in exploiting mature technologies that improve productivity of current innovation operations?	89	16 85
	3 Enhanced competencies in searching for solutions to customer problems that are near to existing solutions rather than completely new solutions?	78	12 90
	4 Upgraded skills in product development processes in which the firm already possesses significant experience?	63	9 05
	5 Strengthened our knowledge and skills for projects that improve efficiency of existing innovation activities?	68	9 89
Competence exploration[d] (Zahra, Ireland, and Hitt 2000)	Over the last three years, to what extent has your firm		
	1 Acquired manufacturing technologies and skills entirely new to the firm?	60	8 23
	2 Learned product development skills and processes (such as product design, prototyping new products, timing of new product introductions, and customizing products for local markets) entirely new to the industry?	81	14 46
	3 Acquired entirely new managerial and organizational skills that are important for innovation (such as forecasting technological and customer trends, identifying emerging markets and technologies, coordinating and integrating R&D, marketing, manufacturing, and other functions, managing the product development process)?	75	13 37
	4 Learned new skills in areas such as funding new technology, staffing R&D function, training and development of R&D, and engineering personnel for the first time?	73	12 57
	5 Strengthened innovation skills in areas where it had no prior experience?	51	6 75
Model 2	**Model Fit Indexes: $\chi^2 = 481.07$, d.f. = 297; χ^2/d.f. = 1.62; RMSEA = .05, GFI = .87, CFI = .93, and NNFI = 91**		
Environmental turbulence[b] (Jaworski and Kohli 1993)	Indicate your degree of agreement about how well these statements describe the market and competitive environment during the last three years		
	1 The actions of local and foreign competitors in our major markets were changing quite rapidly	60	7 11
	2 Technological changes in our industry were rapid and unpredictable	55	6 77
	3 The market competitive conditions were highly unpredictable	65	10 56
	4 Customers' product preferences changed quite rapidly	51	6 06
	5 Changes in customers' needs were quite unpredictable	75	12 77
Perceived market opportunity (Dutton and Jackson 1987)	In your company, different functions such as R&D, marketing, and manufacturing communicate, share, and use information about current and prospective customers, competitors, and other market information in product development Overall, how does each of the following describe your firm's tendency in interpreting new market information? We have a general tendency to view market information and conditions as		
	1 Representing a loss/gain	78	12 78
	2 Uncontrollable/controllable	85	15 51
	3 Having a negative/positive implication for the firm	81	14 83
	4 Representing a threat/opportunity for the firm	77	12 45

TABLE 1
Continued

Construct and Source Model 2	Operational Measures of Construct Model Fit Indexes: χ^2 = 481 07, d.f. = 297; χ^2/d.f. = 1.62; RMSEA = 05, GFI = .87, CFI = .93, and NNFI = 91	SFL[a]	t-Value
Organizational slack[b] (new scale)	1 This firm has uncommitted resources that can quickly be used to fund new strategic initiatives	79	11 63
	2 This firm has few resources available in the short run to fund its initiatives (reverse scored)	69	8 56
	3 We are able to obtain resources at short notice to support new strategic initiatives	73	9 97
	4 We have substantial resources at the discretion of management for funding new strategic initiatives	55	6 09
Output control[b] (Atuahene-Gima and Li 2002)	In evaluating and rewarding new product projects teams in this firm, emphasis is placed on		
	1 Achievement of financial performance objectives	60	8 96
	2 The quantity and quality of the final outputs achieved	71	10 81
	3 The market performance of products	80	12 75
	4 Objective criteria such as cost savings, quantity of new ideas, and patents filed [f]		
Behavior control[b] (Atuahene-Gima and Li 2002)	In evaluating and rewarding new product projects teams in this firm, emphasis is placed on		
	1 Subjective criteria such as the quality attributes of the products	86	12 75
	2 Quality of decisions made rather than the results achieved	68	10 03
	3 Completing major stages of the development process cost-effectively	59	7 71
	4 Meeting of specific product development process deadlines rather than the actual results [f]		
Product development alliances[e] (Li and Atuahene-Gima 2002)	To what extent does each of the following statements describe your firm relative to your major competitors over the last three years?		
	1 Marketed complementary new products with other firms	60	8 44
	2 Established cooperative R&D agreements with other firms	63	9 30
	3 Jointly introduced new products to market with other firms	60	8 68
	4 Jointly designed and manufactured new products with other firms	89	13 01
Market launch capability[e] (new scale)	To what extent does each of the following statement describe your firm relative to your major competitors over the last three years?		
	1 Ability to speedily introduce new products to market	75	10 98
	2 Access to a wide distribution network for new products	56	7 83
	3 Ability to develop creative marketing strategies for new products	66	9 56
	4 Ability to invest significant resources in marketing new products	82	12 04

[a]SFL = standardized factor loading
[b]The scale format for each of these measures was 1 = "strongly disagree" and 5 = "strongly agree"
[c]I standardized items in these scales before creating the scores to measure each construct for analysis
[d]The scale format for each of these measures was 1 = "no extent" and 5 = "to a great extent"
[e]The scale format for each of these measures was 1 = "worse than major competitor" and 5 = "far better than major competitor"
[f]I deleted this item during the scale purification process
Notes RMSEA = root mean square error of approximation, GFI = goodness-of-fit index, CFI = comparative fit index, and NNFI = nonnormed fit index

TABLE 2
Correlation Matrix and Descriptive Statistics of Measures

Variables	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Customer orientation	3 33	94	1														
2 Competitor orientation	3 05	79	19**	1													
3 Perceived market opportunity	2 56	1 09	13*	20**	1												
4 Interfunctional coordination	3 06	92	12	36**	33**	1											
5 Competence exploitation	3 14	80	29**	24*	25**	14*	1										
6 Competence exploration	3 46	80	42**	22**	29**	19**	41**	1									
7 Incremental innovation performance	3 41	72	38**	34**	29**	35**	35**	– 40**	1								
8 Radical innovation performance	2 86	90	17*	23**	22**	38**	– 40**	38**	36**	1							
9 Organizational slack	2 69	95	28**	10	31**	11	32**	35**	22**	27**	1						
10 Environmental turbulence	3 56	96	21**	32**	16*	40**	28**	16**	26**	19**	14*	1					
11 Firm size (log)	1 75	27	04	11	– 01	– 09	– 02	05	– 05	01	– 10	– 06	1				
12 Behavior control	3 33	89	20**	10	00	01	06	20**	– 08	12	10	04	09	1			
13 Output control	2 68	80	25**	13	– 06	– 01	17**	21**	20**	– 15**	02	09	06	33**	1		
14 Product development alliance	2 92	96	– 01	– 11	– 09	– 13*	– 16*	– 06	– 10	– 08	– 03	– 11	11	01	– 10	1	
15 Market launch capability	3 48	1 16	– 00	01	14*	05	04	– 05	05	16*	00	– 02	06	06	05	30**	1
Skewness			– 33	– 17	26	– 15	– 33	– 29	– 11	– 00	44	– 09	– 03	46	05	– 01	– 63
Kurtosis			– 38	49	– 77	– 21	86	20	– 51	– 66	02	– 24	79	– 21	– 50	– 25	19
Composite reliability			86	74	89	85	86	83	70	88	79	78		76	79	75	79
Average variance extracted			60	59	70	59	49	52	50	72	50	52	N A	52	53	53	55

*$p <$ 01
**$p <$ 001
Notes N A = not applicable

estimated moderated regression equations to test the hypotheses I mean centered customer and competitor orientations, interfunctional coordination, and perceived market opportunity before creating the interaction terms (Aiken and West 1991) A Levine test for the threat of unequal variances was not significant ($p > 10$) for any of the variables indicating the presence of homoskedasticity On the basis of studentized residuals and Cook's D tests, I deleted five outlier cases Visual inspection of the plots of the histogram and normal probability plots reaffirmed the multivariate normality of the data (Hair et al 1998) The variance inflation factors in each regression model were all below two, indicating that multicollinearity was not a serious problem An interview survey raises the potential that errors of prediction may not be independent of one another over the sequences of cases (Tabachnick and Fidell 1989, p 133) However, the Durbin–Waston statistic check for nonindependence of errors was not significant in the regression models

Effect of Market Orientation on Competence Exploitation and Exploration

Table 3 (Model 1) shows that the control variables explain 21% of the variance in competence exploitation Adding the independent variables in Model 2 increased R^2 by 6% ($\Delta F = 3\ 72$, $p < 05$) I added the interaction terms in Model 3, which resulted in a further increase in R^2 of 1% ($\Delta F = 1\ 10$, not significant [n s]) Model 3 shows that customer orientation is positively related to competence exploitation (b = 13, $p < 01$), in support of H_{1a} Competitor orientation is positively related to competence exploitation (b = 16, $p < 05$), in support of H_{2a} These relationships are not moderated by interfunctional coordination or by perceived market opportunity Thus, H_{3a}, H_{4a}, H_{5a}, and H_{6a} are not supported Perceived market opportunity is a predictor of competence exploitation rather than a moderator (b = 11, $p < 05$) Three control variables are related to competence exploitation organizational slack, firm size, and environmental turbulence

The data in Table 3 (Model 4) show that the control variables explain 23% of the variance in competence exploration The independent variables increase R^2 by 11% ($\Delta F = 7\ 44$, $p < 001$) (Model 5) The interaction variables contributed an additional 9% ($\Delta F = 6\ 56$, $p < 001$) to explained variance (Model 6) The data in Model 6 show that customer orientation is positively related to competence exploration (b = 26, $p < 001$), in support of H_{1b} Competitor orientation has a significant, positive effect on competence exploration (b = 16, $p < 001$), in support of H_{2b} I discuss the significance of the differential strength (based on standardized coefficients) of the effects of customer and competitor orientations on competence exploitation and exploration subsequently

The product of customer orientation and interfunctional coordination is positively related to competence exploration (b = 10, $p < 01$), in support of H_{3b} To gain further insight into these relationships, using the unstandardized coefficients and following procedures that Aiken and West (1991) outline, I plotted the interactions and conducted simple slope tests The simple slope test involved splitting the moderator (interfunctional coordination) into a high group (two standard deviations greater than the mean) and a low group (two standard deviations less than the mean) and reestimating the relationship between customer orientation and competence exploration The plot in Figure 2, Panel A, shows that when interfunctional coordination is high, the positive relationship between customer orientation and competence exploration is stronger (simple slope b = 28, t = 3 98, $p < 001$) than when it is low (simple slope b = 21, t = 3 67, $p < 001$)

The interaction term for competitor orientation and interfunctional coordination is positively related to competence exploration (b = 12, $p < 05$), in support of H_{4b} Figure 2, Panel B, shows that when interfunctional coordination is greater, there is a positive link between competitor orientation and competence exploration (simple slope b = 34, t = 3 36, $p < 001$) There appears to be no relationship between the two constructs when interfunctional coordination is low (simple slope b = 09, t = 1 10, n s) Interfunctional coordination is a pure moderator because it is unrelated to competence exploration

The interaction between customer orientation and perceived market opportunity is positively related to competence exploration (b = 12, $p < 001$), in support of H_{5b} The plots in Figure 3, Panel A, show that the positive link between customer orientation and competence exploration is stronger when perceived market opportunity is high (simple slope b = 42, t = 5 73, $p < 001$) than when it is low (simple slope b = 14, t = 2 29, $p < 05$) Similarly, the product of competitor orientation and perceived market opportunity is positively related to competence exploration (b = 11, $p < 01$), in support of H_{6b} Figure 3, Panel B, shows a positive relationship between competitor orientation and competence exploration when perceived market opportunity is high (simple slope b = 38, t = 4 06, $p < 001$) but no relationship when it is low (simple slope b = 01, t = 13, n s) Perceived market opportunity is a quasi moderator because it also has a positive relationship with competence exploration (b = 10, $p < 01$) Three control variables are related to competence exploration organizational slack, behavior, and output controls

Effects of Competence Exploitation and Exploration on Innovation Performance

Table 4 presents the results for incremental and radical innovation performance The addition of the independent variables to the control variables in Model 2 increased R^2 by 7% ($\Delta F = 7\ 20$, $p < 001$) over the explained variance in incremental innovation performance in Model 1 The interaction variables increased R^2 by 1% ($\Delta F = 1\ 36$, n s) in Model 3 Competence exploitation is positively related to incremental innovation performance (b = 16, $p < 01$), in support of H_{7a} In contrast, competence exploration is negatively related to incremental innovation performance (b = – 14, $p < 01$), in support of H_{8a} Interfunctional coordination does not moderate these relationships but rather is a predictor of incremental innovation performance (b = 15, $p < 001$) Thus, H_{9a}, H_{10} and H_{12} are not supported, because none of the interaction terms is significant Output control, a control variable, was positively related to incre-

TABLE 3
Regressions Analysis of Effects of Market Orientation on Product Innovation Competence Exploitation and Exploration

		Competence Exploitation			Competence Exploration		
Variables	**Hypotheses**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Controls Variables							
Constant		2 58	2 06	2 05	2 95	2 19	2 02
		(4 36)***	(3 38)***	(3 29)***	(5 51)***	(4 08)***	(3 85)***
Organizational slack		24	17	18	30	20	23
		(4 29)***	(2 83)***	(2 95)***	(5 74)***	(3 78)***	(4 59)***
Firm size (log of number of employees)		– 38	– 43	– 42	– 02	– 12	– 07
		(–1 95)*	(–2 30)**	(–2 25)**	(– 23)	(– 71)	(– 45)
Environmental turbulence		29	22	23	14	– 00	03
		(3 57)***	(2 46)**	(2 58)**	(1 81)†	(– 01)	(48)
Behavior control		02	03	03	00	04	12
		(42)	(52)	(64)	(02)	(70)	(1 85)†
Output control		– 08	– 04	– 05	– 19	– 13	– 13
		(–1 34)	(– 36)	(– 71)	(–3 11)***	(–2 15)*	(–2 10)*
Product development alliance		03	– 02	– 01	03	05	03
		(52)	(– 70)	(– 20)	(68)	(96)	(69)
Independent Variables							
Customer orientation	H_{1a}, H_{1b}		13	13		23	26
			(2 15)**	(2 11)**		(4 43)***	(5 02)***
Competitor orientation	H_{2a}, H_{2b}		17	16		12	16
			(2 18)**	(1 99)*		(1 66)*	(2 36)***
Interfunctional coordination			– 05	– 08		02	– 02
			(– 79)	(–1 17)		(18)	(60)
Perceived market opportunity			09	11		08	10
			(1 88)*	(2 00)*		(1 87)*	(2 31)**
Relevant Interaction Effects							
Customer orientation × interfunctional coordination	H_{3a}, H_{3b}			– 06			10
				(–1 03)			(2 00)**
Competitor orientation × interfunctional coordination	H_{4a}, H_{4b}			08			12
				(1 21)			(1 87)*
Customer orientation × perceived market opportunity	H_{5a}, H_{5b}			02			12
				(37)			(2 61)***
Competitor orientation × perceived market opportunity	H_{6a}, H_{6b}			– 11			11
				(–1 44)			(2 05)**
R^2		21	27	28	23	34	43
Adjusted R^2		18	23	23	20	30	38
F value		7 73***	6 41***	4 91***	8 66***	8 92***	9 06***
ΔR^2			06	01		11	09
Partial F value			3 72*	1 10		7 44***	6 56***
Degrees of freedom		6/179	10/175	14/171	6/178	10/174	14/170

†p < 10
*p < 05
**p < 01
***p < 001

Notes I report unstandardized regression coefficients (t-values are in parentheses, I used a two-tailed test for control variables and a one-tailed test for all hypotheses)

mental innovation performance I replicated the analyses using the measure of incremental innovation performance obtained from the second survey The results remain unchanged

Model 5 in Table 4 shows that the independent and moderator variables increase explained variance in radical innovation performance by 12% (ΔF = 11 82, p < 001) over the explained variance in Model 4 The interaction terms contribute an additional 8% to explained variance (ΔF = 7 05, p < 001) (Model 6) Competence exploitation is negatively related to radical innovation performance (b = – 14, p < 05), in support of H_{7b} and H_{8b}, whereas the effect of competence exploration is positive (b = 14, p < 05) The interaction between competence exploitation and exploration is negatively related to radical innovation performance (b = – 17, p < 001), in support of H_{9b} The plot in Figure 4, Panel A, shows no relationship between competence exploration and radical innovation performance when competence exploitation is high (simple slope b = – 04, t = – 43, n s), but it shows a positive effect when competence

FIGURE 2
Interaction of Interfunctional Coordination and Customer and Competitor Orientations on Competence Exploration

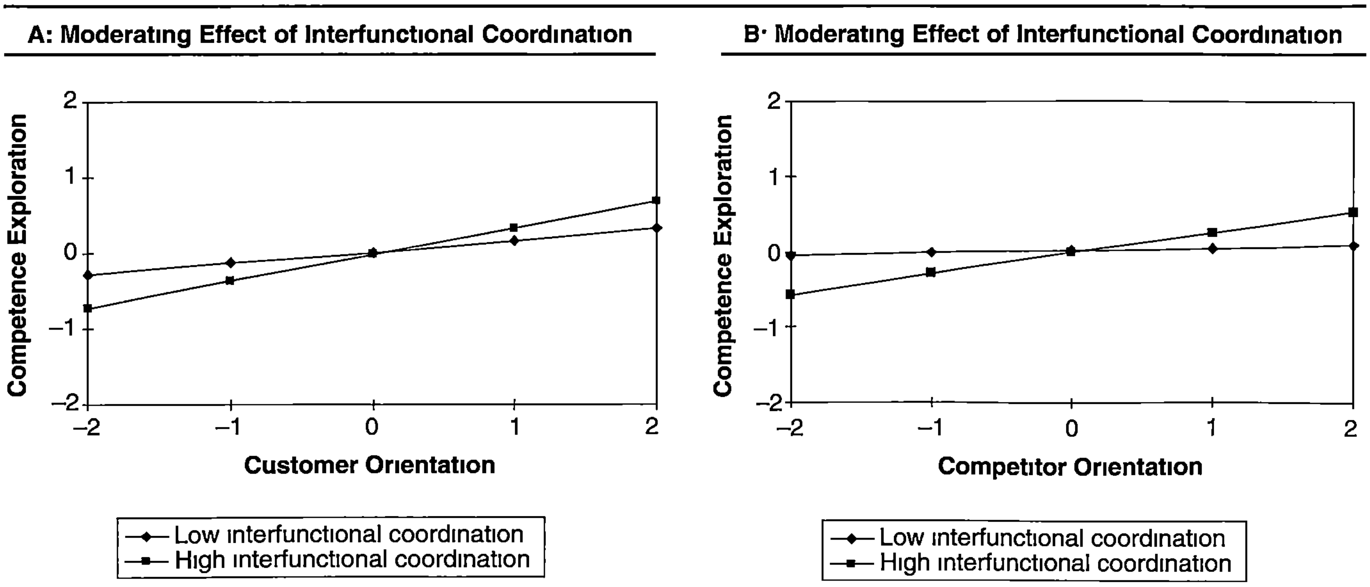
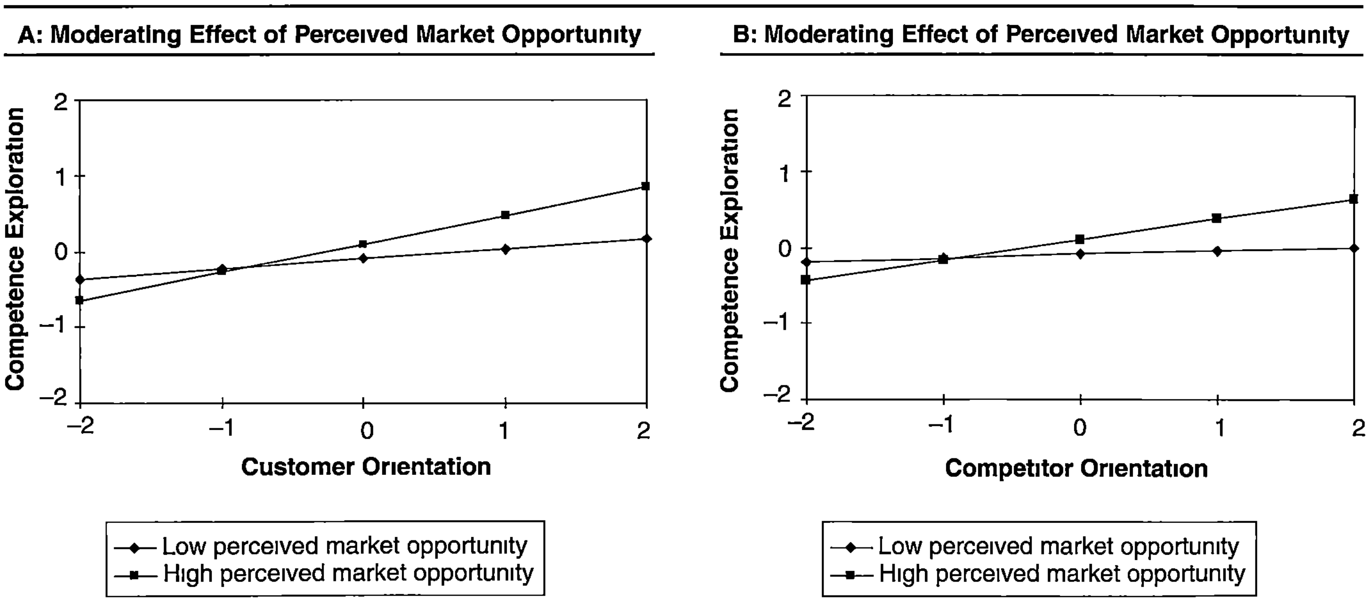


FIGURE 3
Interaction of Perceived Market Opportunity and Customer and Competitor Orientations on Competence Exploration



exploitation is low (simple slope b = 26, t = 3 63, $p <$ 001) The plot in Figure 4, Panel B, shows the reverse relationship, that is, there is a nonsignificant relationship between competence exploitation and radical innovation performance when competence exploration is low (simple slope b = 13, t = 1 45, n s) but a significant, negative effect when it is high (simple slope b = – 28, t = –3 62, $p <$ 001)

The interaction term for interfunctional coordination and competence exploitation is positively related to radical innovation performance (b = 12, $p <$ 05), in support of H_{11} However, Figure 5, Panel A, suggests that at higher levels of interfunctional coordination, competence exploitation has no relationship with radical innovation performance (simple slope b = 09, t = 1 24, n s), but at lower levels, it has a negative effect (simple slope b = – 19, t =

TABLE 4
Regressions Analysis of the Effects of Product Innovation Competence Exploitation and Exploration on Innovation Performance

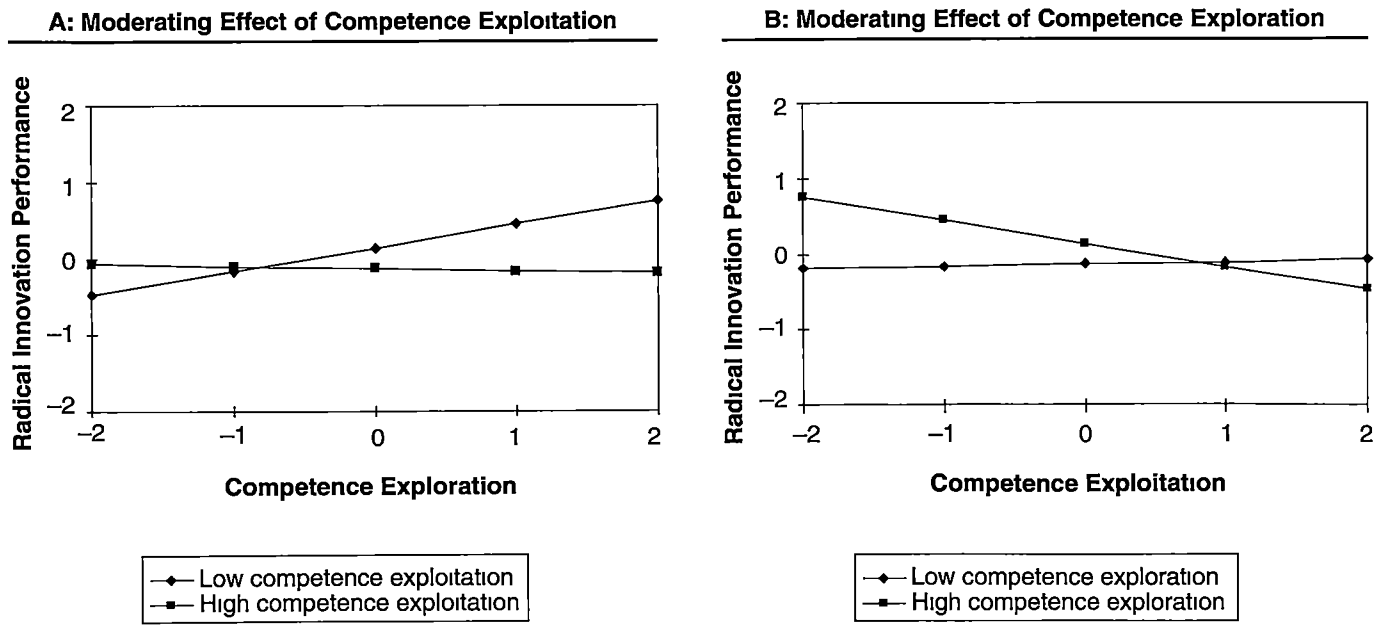
Variables	Hypotheses	Incremental Innovation Performance			Radical Innovation Performance		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control Variables							
Constant		1 82	1 09	87	1 50	31	25
		(4 61)***	(2 66)***	(2 01)*	(2 87)***	(59)	(47)
Organizational slack		08	01	08	23	11	17
		(1 77)†	(23)	(16)	(3 64)***	(1 73)†	(2 77)**
Firm size (log of number		– 03	– 04	– 03	03	02	05
of employees)		(– 52)	(– 67)	(– 55)	(43)	(29)	(76)
Environmental turbulence		13	06	07	15	06	08
		(1 64)†	(83)	(95)	(1 62)†	(72)	(1 00)
Behavior control		– 09	– 11	– 12	02	02	02
		(–1 03)	(–1 17)	(–1 24)	(1 66)†	(1 68)†	(1 42)
Output control		13	11	17	– 13	– 15	– 15
		(1 77)†	(1 62)†	(1 77)†	(–1 32)	(–1 67)†	(–1 78)†
Product development		– 01	– 02	– 00	– 17	– 08	– 06
alliance		(– 17)	(– 23)	(– 06)	(–2 21)**	(–1 15)	(– 95)
Market launch capability		02	01	00	17	14	17
		(66)	(21)	(02)	(3 12)***	(2 70)**	(3 48)**
Customer orientation		19	14	14	04	04	03
		(3 78)***	(2 68)**	(2 58)**	(67)	(– 71)	(48)
Competitor orientation		19	12	12	13	01	02
		(3 14)**	(1 95)*	(2 08)*	(1 65)†	(15)	(29)
Perceived market		– 08	– 03	– 02	– 05	– 06	– 09
opportunity		(–1 47)	(– 57)	(– 05)	(– 85)	(–1 03)	(–1 59)
Independent Variables							
Competence exploitation	H_{7a}		11	16		– 19	– 14
			(1 62)*	(2 10)**		(–2 19)**	(1 60)*
Competence exploration	H_{8a}		– 15	– 14		25	14
			(–2 31)**	(–2 08)**		(2 99)***	(1 67)*
Interfunctional			16	15		24	25
coordination			(2 86)***	(2 84)***		(3 52)***	(3 87)***
Relevant Interaction Effects							
Competence exploitation ×	H_{9a}			06			– 17
competence exploration				(1 20)			(–2 94)***
Competence exploitation ×	H_{10}			06			12
interfunctional coordination				(1 11)			(1 83)*
Competence exploration ×	H_{12}			06			20
interfunctional coordination				(91)			(2 24)***
R^2		27	34	35	21	33	41
Adjusted R^2		23	30	30	17	28	36
F value		7 25***	7 76***	6 60***	5 16***	7 34***	6 60***
ΔR^2			07	01		12	08
Partial F value			7 20***	1 36		11 82***	7 05***
Degrees of freedom		10/199	13/196	16/193	10/200	13/197	16/194

†$p < 10$
*$p < 05$
**$p < 01$
***$p < 001$

Notes I report unstandardized regression coefficients (t-values are in parentheses, I used a two-tailed test for control variables and a one-tailed test for all hypotheses except H_{9a} and H_{9b})

–2 90, $p < 01$) Finally, the positive link between competence exploration and radical innovation performance is stronger when interfunctional coordination is high (b = 20, $p < 01$), in support of H_{13} This result is confirmed by the plots in Figure 5, Panel B, which show that competence exploration is related to radical innovation performance when interfunctional coordination is high (simple slope b = 42, t = 5 32, $p < 001$), but it has no effect when it is low (simple slope b = – 02, t = – 18, n s) Interfunctional coordination serves as a quasi moderator for this outcome

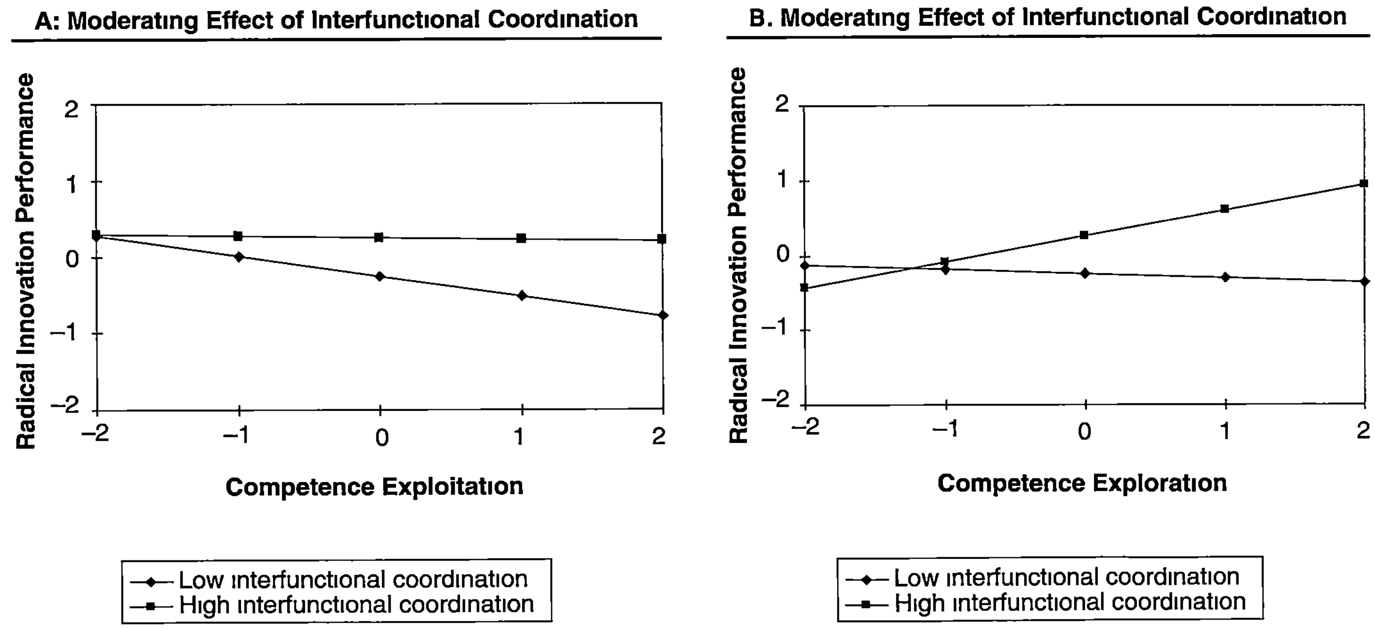
FIGURE 4
Interaction of Competence Exploitation and Competence Exploration on Radical Innovation Performance



A: Moderating Effect of Competence Exploitation

B: Moderating Effect of Competence Exploration

FIGURE 5
Interaction of Interfunctional Coordination and Competence Exploitation and Competence Exploration on Radical Innovation Performance



A: Moderating Effect of Interfunctional Coordination

B. Moderating Effect of Interfunctional Coordination

because it is also positively related to radical innovation performance ($b = .25$, $p < .001$). Market launch capability, organizational slack, and output control predicted radical innovation performance. A replication analysis that substituted the measures for radical innovation performance obtained from the second survey with those from the primary survey confirmed the original findings.

Evaluating the Direct Effects of Market Orientation on Innovation Performance

My model (see Figure 1) posits that competence exploitation and exploration fully mediate the effects of customer and competitor orientations on innovation performance. I used Baron and Kenny's (1986) tests of mediation to verify this claim With the entry of competence exploitation and exploration (see Table 4, Model 3), the effects of customer orientation (b = 19, $p <$ 001) and competitor orientation (b = 19, $p <$ 01) on incremental innovation performance are reduced (but remain significant) customer orientation (b = 14, $p <$ 01) and competitor orientation (b = 12, $p <$ 05) This suggests partial mediation In contrast, Table 4 (Model 5) shows that with the entry of competence exploitation and exploration, the significant effect of competitor orientation on radical innovation performance (b = 13, $p <$ 10) in Model 4 becomes nonsignificant (b = 01, n s) This suggests full mediation Customer orientation has no direct effect on radical innovation performance, suggesting that its effect occurs entirely through its positive influence on competence exploration previously reported in Table 3 Thus, the mediating proposition is partially supported Table 5 summarizes the hypotheses and empirical conclusions of the study

Discussion and Implications

Marketing scholars have paid little attention to resolving the capability–rigidity paradox despite its immense hindrance to the effective management of product innovation, an activity that lies at the heart of marketing's role in enhancing the firm's competitive advantage (Day 1994) In this study, I examined the role of market orientation in resolving this paradox The results advance the marketing literature in several ways First, the results show that both customer and competitor orientations guide managerial decisions to allocate resources to exploit existing product innovation competencies and to develop new ones These findings support propositions in the RBV and marketing theory that because market-oriented firms are sensitive to environmental cues, they are in a better position than their non-market-oriented counterparts to uncover and overcome potential internal competence deficiencies (Barney and Zajac 1994, Day

TABLE 5
Summary of Hypotheses and Empirical Conclusions

Hypotheses	Expected Sign	Empirical Conclusions
H_1 Customer orientation is positively related to		
a Competence exploitation	+	Supported
b Competence exploration	+	Supported
H_2 Competitor orientation is positively related to		
a Competence exploitation	+	Supported
b Competence exploration	+	Supported
H_3 The positive effect of customer orientation on competence		
a Exploitation is stronger when interfunctional coordination is high than when it is low	+	Not supported
b Exploration is stronger when interfunctional coordination is high than when it is low	+	Supported
H_4 The effect of competitor orientation on competence		
a Exploitation is stronger when interfunctional coordination is high than when it is low	+	Not supported
b Exploration is stronger when interfunctional coordination is high than when it is low	+	Supported
H_5 The positive effect of customer orientation on competence		
a Exploitation is weaker when the perceived market opportunity is high than when it is low	–	Not supported
b Exploration is stronger when the perceived market opportunity is high than when it is low	+	Supported
H_6 The positive effect of competitor orientation on competence		
a Exploitation is weaker when the perceived market opportunity is high than when it is low	–	Not Supported
b Exploration is stronger when the market opportunity orientation is high than when it is low	+	Supported
H_7 Competence exploitation is		
a Positively related to incremental innovation performance	+	Supported
b Negatively related to radical innovation performance	–	Supported
H_8 Competence exploration is		
a Negatively related to incremental innovation performance	–	Supported
b Positively related to radical innovation performance	+	Supported
H_{9a} The interaction of competence exploration and exploitation is related to incremental innovation performance	N A	Not supported
H_{9b} The interaction of competence exploration and exploitation is related to radical innovation performance	N A	Supported
H_{10} The positive effect of competence exploitation on incremental innovation performance is stronger when interfunctional coordination is high than when it is low	+	Not supported
H_{11} The negative effect of competence exploitation on radical innovation performance is weaker when interfunctional coordination is high than when it is low	+	Supported
H_{12} The negative effect of competence exploration on incremental innovation performance is weaker when interfunctional coordination is high than when it is low	+	Not supported
H_{13} The positive effect of competence exploration on radical innovation performance is stronger when interfunctional coordination is high than when it is low	+	Supported

Notes N A = not applicable

1994, Hurley and Hult 1998, Schroeder, Bates, and Junttila 2002) Instead of being plagued by the capability–rigidity paradox, it appears that market-oriented firms are able to make judicious judgments in resources allocations for product innovation competencies based on market information Yet expenditures for acquiring and using market knowledge are typically considered operating costs This study provides justification for the view that such expenditures must be considered investments rather than operational costs of the firm (Srivastava, Shervani, and Fahey 1998)

Second, I find that the effects of customer and competitor orientations on competence exploration (unlike competence exploitation) are positively moderated by interfunctional coordination This implies that because competence exploration is a highly risky and uncertain endeavor, the use of market information to inform such a process requires a high degree of interfunctional coordination In contrast, because of its greater experience with existing competencies, a firm's use of market information to guide resource allocation for competence exploitation does not necessarily require high interfunctional coordination efforts A related finding is that because of the uncertainties and risks involved in developing radical innovations, firms require greater interfunctional coordination in deploying both existing and new competencies for this purpose As people from different functions interact, there is likely to be reinterpretation of one another's perspectives in deploying the firm's competencies (Henderson and Cockburn 1994), developing new solutions, and recombining existing competencies for use in new product areas (Zahra and Nielson 2002) Interfunctional coordination helps explain the differential capacities of firms to exploit existing competencies and to explore new ones simultaneously to develop radical innovations and thus escape the capability–rigidity paradox

Third, I find that a managerial mental model that perceives the market environment as an opportunity rather than as a threat has significant implications for the firm's decision to develop entirely new product innovation competencies A possible explanation for this result is that with such a mental model, managers are likely to discover competence gaps that need to be overcome to benefit from the available market opportunities Because customer and competitor orientations lead to greater understanding of the firm's strengths and weaknesses in relation to those of its competitors (Day and Wensley 1988), when perceived market opportunity is high, managers are more likely to develop new competencies than to focus entirely on exploiting existing ones Perceived market opportunity reduces the perceived costs of investments into new competencies (White, Varadarajan, and Dacin 2003) This is an important insight because scholars tend to examine the role of market orientation on product innovation activities without explicitly considering how the managers' interpretations of the market conditions affect the linkages The role of mental models may represent an underdeveloped aspect of the study of market orientation and should be given attention in future studies

Fourth, the new evidence of the differential direct and interaction effects of competence exploitation and exploration on product innovation performance is particularly poignant Although the differential effects affirm conventional wisdom, the negative effect of their interaction on radical innovation performance is counterintuitive It implies that competence exploration will be more valuable to the firm when it is matched with a lower level of competence exploitation, and vice versa Because too much of both competence exploitation and exploration may have undesirable costs for the firm (March 1991, Nerkar 2003), this result implies that a firm at the forefront of new knowledge creation through exploration is more likely to succeed in developing radical innovations by recombining this knowledge with some level of exploitation Existing competencies provide the necessary absorptive capacity to use new competencies (Danneels 2002) Conversely, a firm that is extremely competent in exploiting its current competencies will be successful with radical innovation only with a little dose of exploration This finding reflects the argument that many radical innovations are the locus of a meeting between a problem and its solution, even when neither the problem nor the solution is itself new (Galunic and Rodan 1998, Kogut and Zander 1992) This insight is apt in the context of this study in which firms may exploit existing capabilities in new ways to solve emerging customer problems (Luo 2002) Radical innovations to the Chinese market often result from the recombination of known technology and market elements The product novelty stems from the act of combination, not necessarily from the novelty of the technology and market solutions combined

Finally, the differential strengths of the direct effects of customer and competitor orientations on competence exploitation and exploration are noteworthy Competitor orientation has a greater effect on competence exploitation, a key driver of incremental innovation performance, than does customer orientation This suggests that compared with customer focus, competitor-centered practices enable firms to marshal resources to meet more immediate threats of competitors through competence exploitation and incremental innovations (Noble, Sinha, and Kuma 2002) Thus, the partial mediation of the effects of customer and competitor orientations on incremental innovation performance by competence exploitation and exploration suggests that examining only their direct effects leads to an underestimation of their differential explanatory power Furthermore, compared with competitor orientation, customer orientation has a stronger effect on competence exploration, which is the only means by which customer orientation is positively linked to radical innovation performance Yet competence exploration fully mediates the positive effect of competitor orientation on radical innovation performance These findings provide some support for Noble, Sinha, and Kumar's (2002, p 36) conjecture that exploration plays a stronger role in the transition of customer and competitor orientations to firm performance than does exploitation Given that competence exploration involves the acquisition of entirely new knowledge and skills, these results suggest that it is through customer rather than competitor orientation that firms build stronger capacities for radical innovation I contend that these differential effects may be the result of firms having greater knowledge of their future customers than of their future competitors Indeed, few, if any, empirical frameworks exist for marketing managers to identify and analyze future competitors Deeper insight is necessary in future research on how firms develop competitor orientations In brief, in failing to examine the differential routes by which customer and competitor orientations affect innovation performance, these findings imply that previous research may have arrived at a premature and perhaps an overly simplistic view of the relationships

Theoretical Contributions

This study contributes to marketing theory in five main respects First, the study incorporates market orientation into the RBV research stream that views firms as responding to environmental conditions through existing competencies and the development of new ones (Barney and Zajac 1994, Cockburn, Henderson, and Stern 2000) According to the RBV, knowledge is the most important resource that a firm can control, but the challenge is how firms turn knowledge into internal competencies for innovation (Barney 1991, Kogut and Zander 1992) By addressing the link between customer and competitor orientations and product innovation competencies, this study meets this challenge and presents a new perspective of the role of market orientation in product innovation, that is, market orientation can contribute to competitive advantage insofar as it elicits and reinforces investments in existing product innovation competencies and simultaneously leads to the development of new competencies Although marketing scholars have theorized about this linkage (e g , Day 1994, Hurley and Hult 1998), there has been no empirical evidence until now This evidence contributes to the marketing literature by providing a new theoretical mechanism by which market-oriented practices are linked to incremental and radical innovations simultaneously

Second, the finding of a significant moderating role of interfunctional coordination resonates with research that suggests a dual role for organizational coordination mechanisms one of transformation of knowledge into functional competencies (Grant 1996) and one of integration of functional competencies into performance outcomes (Grant 1996, Henderson and Cockburn 1994) The knowledge-sharing benefits of interfunctional coordination ensure the collective assimilation of efforts among functional units to use market knowledge to engender competence exploration In addition, by enhancing connectedness among functional units, interfunctional coordination ensures the effective use of the firm's new product innovation competencies to engender radical innovation outcomes These findings underscore the wisdom of a disaggregated view of market orientation and suggest a more nuanced view of the different roles of interfunctional coordination than has previously been provided in the extant literature

Third, resource allocations for capability building involve a trade-off between exploitation and exploration (March 1991) In finding a significant moderating impact of the firm's perceived market opportunity on the effect of customer and competitor orientations on competence exploration, this study reveals an important managerial factor that may enable firms to strike an appropriate trade-off The finding validates Day's (1994) thesis about the salience of managers' mental models in using market information to build firm capabilities It also emphasizes the notion that building new capabilities does not involve the mere acquisition and use of market knowledge More critically, the process involves the use of interpretation schema to determine how the managers respond to the market situation (White, Varadarajan, and Dacin 2003) This finding throws new light on why different firms faced with the same objective market conditions develop different product innovation capabilities

Fourth, this study contributes to marketing theory by being perhaps among the first to test empirically the proposition that competence exploitation and exploration have direct and opposing relationships with incremental and radical innovations performance In particular, the negative impact of their interaction on radical innovation performance suggests new theoretical implications that are unavailable in the extant literature Both exploitation and exploration require a little dose of each other to enhance radical innovations This study suggests that a firm must exploit some level of its current competencies to leverage its new competencies to develop radical innovations This echoes Danneels's (2002, p 1097) finding that "rather than trapping the firm, current competencies may be used as leverage points to add new competencies" The additional new insight that is missing in the literature but is offered here is that existing competencies, when coupled with some level of new competencies, may also enhance radical innovations This new insight lends some support to the idea that effective balancing of exploitation and exploration requires a high–low matching rather than a high–high matching (Nerkar 2003) Further research should address the organizational designs and processes that could ensure appropriate levels of interaction between competence exploitation and exploration

Fifth, given the context of this study, the results have implications for the role of market orientation in the firm's adaptation to turbulent environments As I argued previously, the significant risks and uncertainties in a transitional environment indicate that firms in China must confront not only the challenge of new competition, changing technologies, and new customer preferences but also collapsing capabilities (Li and Atuahene-Gima 2002) Exploitation of existing capabilities may not be adequate and may quickly become hazardous to competitive advantage Systematic efforts are necessary to track the market changes and to assess the firm's competence deficiencies to refine existing competencies and to develop the necessary new ones for the new environment By empirically linking market orientation to the simultaneous exploitation and exploration of product innovation capabilities and outcomes in China, I demonstrate that market orientation has promise for understanding how firms adapt to complex and turbulent environments

Managerial Implications

Studies indicate that market-based assets, such as market orientation, play an important role in creating and sustaining shareholder value and should play an equally significant role in investment decisions (Srivastava, Shervani, and

Fahey 1998). By showing that market orientation affects product innovation competencies, this study reinforces this perspective and provides further empirical evidence with which marketing managers can buttress the argument that marketing expenditures may be better viewed as capital investments rather than as operational costs. Therefore, the results suggest an important role for marketing managers in planning and executing the firm's resource allocation decisions about product innovation. To exercise this role, marketing managers can use the results reported here to make the case for increased interface with finance to ensure (1) that resource allocation decisions take into account the firm's needs for new product innovation competencies and (2) that such decisions are appropriately guided by the firm's knowledge of current and emerging market conditions.

Traditionally, resource allocation in product innovation has been largely guided by the level of sales (e.g., R&D as percentage of sales) and competitors' expenditures and/or based on innovation typologies, such as process and product innovations. This study suggests an additional criterion: competence exploitation and exploration to prioritize resource allocation in product innovation. The ten-item measure for competence exploitation and exploration used in this study could be a useful starting point for marketing managers in developing such a decision-making yardstick. In addition, the results suggest that marketing managers should be sensitive to the need for knowledge sharing and integration among functional units within the firm. This is because the mere allocation of a scarce resource to competence exploitation and exploration is unlikely to yield radical innovations without effective coordination among cross-functional units to translate this competence into effective outcomes.

This study suggests that to ensure the effective allocation of resources for new competencies, marketing managers should work to prevent threat-rigidity tendencies when interpreting the market situation in the firm. When marketing managers successfully persuade other functional units about the potential opportunities that market conditions offer, the firm is likely to consider its current innovation capabilities critically and devote resources to the exploration of new ones. In doing so, marketing managers would be helping prevent competence exploitation from crowding out competence exploration in their firms. Therefore, reducing threat-rigidity tendencies in the interpretation of market information should be an important task for marketing managers. This could be achieved by marketing's advocacy for functional diversity, reward systems that encourage risk taking, and interdependencies among functions in the acquisition and use of market information.

Finally, findings suggest that because marketing managers have the ability to balance the potential tension between competence exploitation and exploration, they are likely to experience greater success in their efforts to enhance the firm's product innovation. As the results indicate, managers may need to combine high competence exploration with low competence exploitation (and vice versa) to develop radical innovations. This requires careful attention to the use of ambidextrous structures that separate exploration and exploitative activities (O'Reilly and Tushman 2004). As an example, FirstDirect and SKF set up autonomous new business units to develop new competencies for new markets, but they left the exploitation of existing competencies to existing business units (Abell 1999).

Limitations and Directions for Further Research

This study has several limitations. First, the measure for market orientation neither captures all its different components nor covers all the various stakeholders (e.g., suppliers) that are likely to be the focus of a firm's information collection efforts (Matsuno and Mentzer 2000). I measured innovation competence and performance across three years. However, the question remains whether market orientation may be causally an antecedent to competence and performance across multiple years. Thus, a second limitation of the study is that causal relationships cannot be inferred in the results reported. Further research might adopt a longitudinal design to tease out these linkages more clearly. Third, I used data from a sample of firms from a single industry. Although this offered several advantages for this study, it limits the generalizability of the results. Finally, I controlled only for a limited set of the potential antecedents of product innovation competencies and outcomes because of data limitations.

In addition to alleviating these limitations, there are other fertile avenues for further research. First, although I focused on product innovation competencies, the theory I developed herein can conceivably apply to several other organizational competencies that Day (1994) describes as spanning and inside-out capabilities. Further research should examine the potential effects of market orientation on these other capabilities. Second, I show that market orientation may have relatively stronger effects on competence exploration and on radical innovations. This echoes Atuahene-Gima's (1995, p. 279) argument that "in contrast with incremental innovations, firms need greater degree of market orientation not only to cope with the high level of uncertainties associated with developing radical innovations but also in establishing and educating the market." Yet some scholars argue that market orientation may lead to competency traps that stifle competence exploration and radical innovations. To date, however, the literature lacks clarity on the nature and types of these traps and the effect that market orientation has on them. The linkage between market orientation and competency traps requires empirical scrutiny in further research to advance the understanding of product innovation.

Third, this study suggests a synergistic perspective of interfunctional coordination by considering both the direct and the moderating effects of this integrative mechanism. Further research should adopt this perspective in studying other formal (e.g., cross-functional teams) and informal (e.g., social networking) integrative mechanisms to ensure a better understanding of the outcomes of customer and competitor orientations. Although it is useful for sharing ideas and gathering interpretations, interfunctional coordination may also carry costs. However, there is little research that considers costs and drawbacks of interfunctional coordination Research is necessary on the conditions that moderate the effect of this integrative mechanism on product innovation competencies and their outcomes Fourth, the results of this study point to the importance of the mental models in capability building and underscore the need for further research to examine the factors that affect the interpretation of a market situation as an opportunity or as a threat

Finally, although the capability–rigidity paradox is typically conceptualized with respect to product innovation, it occurs in any marketing activity in which the choice between exploitation and exploration is an issue (see Kyriakopoulos and Moorman 2004) This raises several research questions that may be the focus of further research What factors influence the allocation of resources between exploitation and exploratory marketing strategies? To what extent do firms differentiate between exploration and exploitation in their relationships with customers and other firms, and what are the performance effects of such relationships? Under what conditions are exploratory and exploitative innovations and marketing strategies related? and How do firms maintain a balance between exploitative and exploratory marketing strategies? Research on these and other related questions could provide a better understanding of marketing's role not only in sustaining the firm's current competitive advantage but also, and perhaps more important, in building its sources of future competitive advantage

Conclusion

Taken together, the results of this study suggest that market orientation can prevent a firm from being operationally efficient but strategically inefficient by enhancing both product innovation competence exploitation and exploration Market orientation appears to be a key mechanism by which firms can reap the benefits of their innovation capabilities without incurring the costs associated with potential rigidities In my view, this more nuanced assessment of market orientation is only one of the benefits, both for theory building and practice, of an inquiry into how firms generate and exploit product innovation competencies Given the Chinese context of the study, I believe that this study provides a significant clarification of the role of market orientation in firms' adaptation in turbulent environments through product innovation However, this line of inquiry is still in its infancy The complexity of the research questions that this article raises is only comparable to the magnitude of the expected returns from the advancement of the knowledge of marketing's role in the firm

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Tridib Mazumdar, S.P. Raj, & Indrajit Sinha

Reference Price Research: Review and Propositions

A substantial body of research evidence has now accumulated in the reference price literature. One stream of research has identified the antecedents of reference price and has assessed their effects through experimentation. Others have calibrated a variety of reference price models on panel data and reported the effects on brand choice and other purchase decisions. In this article, the authors review the published literature on reference price in both the behavioral and modeling streams. They offer an integrative framework to review prior research on (1) the formation of reference price, (2) retrieval and use of reference price, and (3) influences of reference price on various purchase decisions and evaluations. In doing so, the authors examine the influences of consumers' prior purchase history and contextual moderators, such as specific purchase occasions, promotional environment of the store, and product category characteristics. They summarize the key findings, identify the unresolved issues, and offer an agenda for further research, which includes a set of testable propositions. They also identify the methodological challenges that face reference price research. In the concluding section, the authors discuss the managerial implications of reference price research.

Reference prices are standards against which the purchase price of a product is judged (Monroe 1973). Numerous articles on the topic of reference price have been published in marketing journals and presented at marketing conferences. These articles provide insights into such issues as the conceptualization of reference price, how it can be measured or modeled, and its effects on consumer purchase behavior. The effects of reference price on consumer choice have been accepted as an empirical generalization in marketing (Kalyanaram and Winer 1995), and the idea of reference point has been extended to other stimuli such as price promotions (Lattin and Bucklin 1989) and product quality (Hardie, Johnson, and Fader 1993). A few researchers have also incorporated reference price into economic theory and have developed models of consumer choice (e.g., Putler 1992). Others have considered reference price effects in modeling competitive behavior of firms and have developed managerial guidelines for retailers and manufacturers (Greenleaf 1995; Kopalle, Rao, and Assunção 1996).

Despite the wealth of available findings and the acknowledged theoretical and managerial importance of the reference price concept, there is no cohesive framework that has systematically examined its antecedents, the mechanisms by which it is formed, and its use by consumers. Winer (1988) provides a survey of the theoretical foundations and modeling of the reference price concept, Briesch and colleagues (1997) present an empirical comparison of different reference price models, and Kalyanaram and Winer (1995) draw empirical generalizations, but these reviews focus primarily on modeling-based investigations that use panel data for frequently purchased packaged goods (FPPG). Thus, there has not been a comprehensive assessment of what is known about reference price and what remains unresolved.

The goal of this article is to present an integrative review of published articles on reference price and related topics. In our attempt to synthesize the empirical evidence, we identify two fairly independent streams of research. The first stream takes a behavioral perspective and uses experimental approaches to assess the effects of external stimuli on consumers' internal reference price (IRP), price judgments, and other evaluations (e.g., Alba et al. 1999; Urbany, Bearden, and Weilbaker 1988). The second stream of research models alternative reference price formulations and tests their effects from the statistical fit of models calibrated on consumer panel data (e.g., Briesch et al. 1997; Winer 1986).

We offer a framework that synthesizes the findings from both behavioral and modeling-based research streams, and we assess our current understanding of (1) the formation of reference price, (2) the retrieval of IRP from memory and the relative use of memory versus information available externally (hereafter, external reference price [ERP]), and (3) the effects of reference price on purchase decisions and evaluations. For each of the three areas of reference price research, we first review available prior research and present the findings as summaries. We then identify "research gaps" and provide directions for further research, which include a set of propositions. Next, we highlight the methodological challenge that arises from the confounding effects of consumer heterogeneity when reference price effects are estimated. We conclude with a brief review of

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the different domains of reference price construct and a discussion of the managerial implications

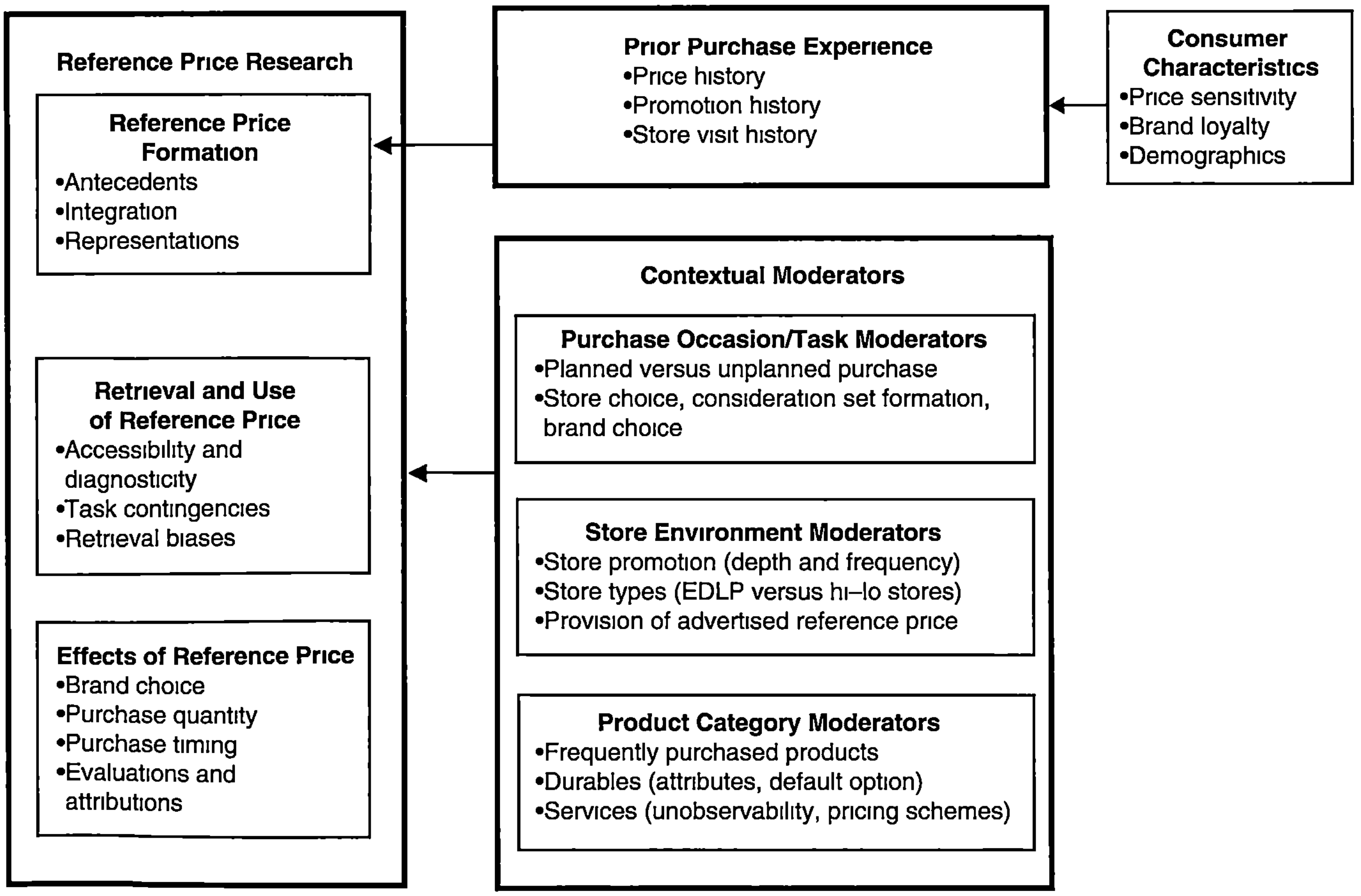
A Conceptual Framework

Reference price has multiple conceptualizations A common conceptualization views reference price as a predictive price expectation that is shaped by consumers' prior experience and current purchase environment (Briesch et al 1997, Kalyanaram and Winer 1995) The theoretical rationale for this conceptualization comes from adaptation-level theory (Helson 1964), which holds that people judge a stimulus relative to the level to which they have become adapted Thus, in a pricing context, the expectation-based reference price is the adaptation level against which other price stimuli are judged (Monroe 1973) Other conceptualizations of reference price include normative and aspirational standards (Klein and Oglethorpe 1987) A normative reference price is one that is deemed "fair" or "just" for the seller to charge (Bolton and Lemon 1999, Bolton, Warlop, and Alba 2003, Campbell 1999), and an aspiration-based reference price is based on what others in a social group pay for the same or similar product (Mezias, Chen, and Murphy 2002) Although we offer a brief review of the latter two conceptualizations in the concluding section of this article, our main focus is on the expectation-based reference price (for a comprehensive account of the fair price conceptualization, see Xia, Monroe, and Cox 2004)

Figure 1 serves as a framework for organizing the presentation of this review At the core of the framework (see the left box in Figure 1), we include three main areas of reference price research The first area of research examines the formation of reference price The relevant areas of research interest here are identification of the inputs to IRP, integration and assimilation of the information, and the different representations of IRP in memory The second area of research focuses on the retrieval and use of IRP The key research issues here are the moderating effects of the accessibility of price information in memory (i e , IRP) versus those available externally (ERP), retrieval of IRP under different task contingencies, and the biases that may occur during consumers' retrieval process The third aspect of reference price research focuses on the effects of using reference price on a variety of buying decisions (e g , brand choice, purchase quantity) and on making other evaluations and attributions

Consistent with adaptation-level theory, the framework also proposes that consumers' prior purchase experiences, the current purchase context, and individual characteristics of consumers influence certain aspects of reference price formation, retrieval, and effects either directly or indirectly

FIGURE 1
A Conceptual Framework for the Review of Reference Price Research


Reference Price Research
Reference Price Formation
•Antecedents
•Integration
•Representations
Retrieval and Use of Reference Price
•Accessibility and diagnosticity
•Task contingencies
•Retrieval biases
Effects of Reference Price
•Brand choice
•Purchase quantity
•Purchase timing
•Evaluations and attributions
Prior Purchase Experience
•Price history
•Promotion history
•Store visit history
Consumer Characteristics
•Price sensitivity
•Brand loyalty
•Demographics
Contextual Moderators
Purchase Occasion/Task Moderators
•Planned versus unplanned purchase
•Store choice, consideration set formation, brand choice
Store Environment Moderators
•Store promotion (depth and frequency)
•Store types (EDLP versus hi–lo stores)
•Provision of advertised reference price
Product Category Moderators
•Frequently purchased products
•Durables (attributes, default option)
•Services (unobservability, pricing schemes)

Prior experiences during which consumers are exposed to price and promotional information create a price memory, the retrieval of which has subsequent effects However, several contextual factors may moderate this influence In our framework, we consider three contextual moderators (1) the purchase occasion or task, (2) the store environment, and (3) the type of product being purchased[1] The purchase occasion and task moderators differentiate one purchase occasion from another (e g , planned versus opportunistic purchase) and one purchase task from another (e g , brand choice versus store choice task) The store environment moderators include retail pricing and promotional strategies, which are implemented by altering the depth and frequency of promotions through everyday low price (EDLP) or hi–lo pricing, such promotions are often accompanied by the retailer's explicit provision of the advertised reference price at the point of purchase The inclusion of product category moderators expands the scope of reference price research beyond FPPG to include durable products and services as well

Finally, the framework considers the possibility that prior experience can vary across consumers as a result of individual differences in price sensitivity, brand loyalty, demographics, and so forth These differences influence consumers' purchase history and incidence Accounting for individual differences in assessing the reference price effects presents methodological challenges in reference price research We consider each of these issues in greater depth in the following sections

Reference Price Formation

We divide this section into three parts First, we identify the information that consumers acquire over time and contextually, which serves as input to the formation of IRP Second, we review the processes that consumers may use to integrate memory-based and contextual information Third, we consider alternative mental representations of reference price We offer a summary at the end of the section

Antecedents to Reference Price

Prior purchase experience Because panel data provide extensive information on consumers' prior purchases, modeling-based reference price research has used consumer purchase history as the main determinant of IRP for FPPG (for a summary of previously used IRP models, see Briesch et al 1997) The following is a commonly used IRP model for brand i and consumer H on purchase occasion t

$$(1)\quad IRP_{iHt} = \alpha \times Price_{iH(t-1)} + (1-\alpha) \times IRP_{iH(t-1)} + \beta_{Prom} Prom_{iH(t-1)}$$

This model of IRP is entirely memory based and is influenced by prior prices and promotions The first two terms capture the effect of prior prices on IRP and have been shown to be the strongest predictors of price expectation Parameter α, $0 \leq \alpha \leq 1$, signifies the recency effect of prior exposures to price on IRP Studies have found that this parameter ranges from approximately 60 to 85 in different product categories, which indicates that prices encountered beyond two to three prior purchase occasions have negligible direct influences on IRP (for the results of a field study, see Dickson and Sawyer 1990) In addition to prior prices, consumers use previously encountered promotions to create a promotion expectation for a brand (Lattin and Bucklin 1989) that reflects their interest in obtaining transaction utility (Thaler 1985) Because the promotion expectation indicates the extent to which a consumer has been conditioned to promotions, it is usually operationalized as the proportion of times he or she purchased (or observed) a brand on promotion in the past The greater the deal expectation, the lower is the IRP for the brand (Kalwani et al 1990)

> Summary 1 The following factors involving a consumer's prior purchase experiences have been shown to influence IRP
>
> - The strongest determinant of a consumer's IRP is the prior prices he or she observes
> - Prices encountered on recent occasions have a greater effect on IRP than distant ones
> - The greater the share of prior promotional purchases, the lower is the consumer's IRP

Purchase context moderators Although the reference price model presented in Equation 1 has been used frequently, it does not allow for differences in purchase contexts Thaler (1985) demonstrates that reference points for an identical product differ simply because of differences in purchase contexts One such purchase context is the type of shopping trip consumers make for FPPG (e g , planned versus unplanned trip, regular versus fill-in trips) Bucklin and Lattin (1991) show that consumer processing of in-store promotional activities varies depending on whether a shopping trip is planned or opportunistic Kahn and Schmittlein (1989, 1992) find that out-of-store promotions have a stronger effect on brand purchase decisions during a regular shopping trip (i e , larger basket size), whereas in-store promotions have a stronger effect when the trips are fill-in (i e , smaller basket size) Bell and Lattin (1998) demonstrate that large-basket shoppers are less price elastic in their individual category purchase incidence decisions but are more price elastic in their store choice decisions

Although the preceding research was not conducted in the context of reference prices, it suggests that the shopping occasions should moderate the influence of prior price and promotional history on IRP[2] Further research might investigate whether the salience of prior prices in the formation of IRP varies by shopping trip types Prices encountered during prior planned and regular shopping trips may be more salient (than those encountered during opportunistic and fill-in trips) for the IRP used for subsequent planned and regular shopping trips Likewise, the effect of prior promotional purchases on the formation of IRP may also vary by shopping trip type Out-of-store promotions may be more salient in the formation of IRP when a shopping trip is planned and the basket size is large than when the trip is opportunistic and the basket size is smaller In-store promotions may be salient for both opportunistic and planned purchases

---

[1] The three moderators and the components in each cover the main areas of prior and potential research on reference price However, note that the list of moderators is by no means exhaustive

[2] We review the research on planned/regular versus opportunistic/fill-in to illustrate the potential effect of purchase context moderators There can be a variety of other purchase context moderators (e g , purchase for gift giving, purchases made during a vacation)

Store environment moderators A brand's IRP may vary by store because of the level of service provided, assortment offered, or store types (e g , factory outlet, specialty store, mass merchandiser) (Berkowitz and Walton 1980, Biswas and Blair 1991) For example, the same price of a bottle of wine could be judged more favorably if it is sold in a specialty wine store than if it is sold in a discount wine store Likewise, consumers may be more (less) price sensitive and thus have lower (higher) IRP when buying products from online retailers that provide comparative price (quality) information aimed at lowering search costs (Lynch and Ariely 2000) In addition, the promotional strategies that stores use may influence consumers' IRP Stores implement these strategies by altering the frequency and depth of promotion by their adoption of either an EDLP or a hi–lo pricing policy (see Neslin 2002)

Frequent deals and deep price cuts have been shown to lower consumers' IRP (Alba et al 1999, Kalwani and Yim 1992) Kalwani and Yim (1992) report that the price consumers expected to pay for an item was significantly lower after they observed either more frequent or deeper promotions for the item on previous purchase occasions However, there are several factors that have been shown to bias consumers' perception of deal frequencies Consumers tend to distort perceptions of deal frequency when they are random, in addition, their perceptions of deal frequency of a certain brand are affected by the dealing pattern of a rival brand (Krishna 1991) Krishna, Currim, and Shoemaker (1991) find that consumers tend to overestimate the deal frequency of infrequently promoted brands and underestimate the deal frequency of brands that are promoted more heavily Distortions are also found to occur for depth of promotions based on how the promotion is framed DelVecchio, Krishnan, and Smith (2003) find that promotions framed as a percentage off (versus cents off) influence consumers' price expectations more when the depth of promotion is high for low-priced products and when the depth is low for high-priced products The effect of depth is found to decrease beyond a high level of discount (Gupta and Cooper 1992)

Summary 2 The negative effect of deal frequency on consumers' IRP is moderated by (a) the dealing pattern (i e , regular versus random) of the purchased brands, (b) the dealing pattern of competing brands, and (c) the framing of the deal (percentage off versus cents off) In addition, the marginal (negative) effect of deal frequency and depth on IRP decreases as the frequency and depth of promotions increases

The effects of depth and frequency of promotions found in prior research have not been adequately integrated into the research on the formation of IRP at an EDLP versus a hi–lo store (cf Kopalle, Rao, and Assunção 1996) Because all brands in an EDLP store are, in effect, being promoted as brands "always" on sale, this promotional strategy can be considered one of moderate discount depth but infinite frequency Because promotion frequency has been shown to have a stronger influence than promotion depth on price perceptions (Alba et al 1999), IRPs for brands sold in an EDLP store are likely to be lower than those of brands sold in a hi–lo store, ceteris paribus (Alba et al 1994, Shankar and Bolton 2004) However, hi–lo stores can influence IRPs for selected brands within these stores by deep and simple dichotomous discounts—that is, one regular (high) and one sale (low) price (Alba et al 1999)

Another potential area for research is to investigate the effects of "rollback" prices on IRP In advertising rollback prices, EDLP stores (e g , Wal-Mart) often convey the message that additional cost savings they are able to obtain from suppliers are being passed on to customers This explanation of additional price cuts within an EDLP store is presumably to minimize the negative effects of promotions on IRP However, frequent use of rollback prices in predictable categories is likely to be noticed by consumers and incorporated into their price expectations, much like promotions in a hi–lo store

Product category moderators The variables included in Equation 1 are not appropriate for durables and services Winer (1985) proposes a model for durable products in which IRP is a function of (1) price trend, (2) current and anticipated economic conditions (e g , inflation), (3) predictive signals of future prices, and (4) household demographics Focusing on the personal computer category, Bridges, Yim, and Briesch (1995) find that consumers' price expectations are also influenced by the relative level of technology used (e g , processor speed) by a specific model in the same product category

Because durables have longer interpurchase time than FPPG, the attribute configuration, technology used, and price of a durable may change significantly The information acquired during prior purchase occasions is therefore less salient in the formation of a reference price for a durable product than it is for an FPPG Thus, current prices of competitive products and economic and technological trends are likely to be better predictors of IRP for durable products Moreover, compared with FPPG, the variations in attributes and features across choice alternatives are typically more discernible for durables Thus, IRPs of durable products may be a hedonic function of the features and attributes they contain

Summary 3 IRPs for durable products are influenced by such aggregate factors as anticipated economic conditions (e g , inflation) and household demographics In addition, in the formation of IRPs for durable products, competitive prices and differences in attribute configurations and features across alternatives are more salient than historical prices, historical prices of durable products are used only to discern a price trend, if it exists Finally, consumers' price expectations are influenced by the technology used in a specific brand compared with other brands in the same durable product category

In addition to the relative level of technology of a brand (or model), IRP for high-technology durables should also be influenced by consumers' estimates of cost of key inputs (e g , Intel versus AMD microprocessor) and other externalities such as expected installed base and availability of complementary products In addition, in many durable products, consumers use the price of a "default option" provided by the seller (e g , Dell Web site) as an initial reference point Further research is necessary to understand the influences of the default provider's characteristics and the attribute configurations of the default option

There is limited research on the formation of reference prices for services Services range from those that are purchased at regular intervals (e g , oil change, hair cut, car wash) to those that are infrequently purchased and sometimes have long temporal separation between their purchase and consumption (e g , cruise) (Shugan and Xie 2000) Because the former class of services is conceptually similar to FPPG, the usual factors, such as prior and competitive prices and promotions, and store characteristics (e g , dealership versus an independent repair shop) should be significant predictors of IRP For the latter type of services, extrinsic signals (e g , reputation of the service provider, word of mouth, endorsements) (Bolton and Lemon 1999) and tangible signals (e g , time spent on performing a service, cruise itinerary, refund policies) are likely to influence consumers' expectations about service quality and, therefore, price expectations

There is another class of services in which consumers make a long-term commitment to buy the service from a service provider, but the consumer's usage rate may vary (e g , cable television, telephone calling plans, health club memberships) To investigate how consumers evaluate continuously provided services, Bolton and Lemon (1999) propose that consumers use a priori norms (i e , reference points) of expected payments, performance, and usage rates Consumers maintain mental accounts of whether the actual outcomes exceed (or fall below) the norms, which results in the assessment of fairness or "payment equity" The assessment of gains and losses in payment equity influences customer satisfaction and service usage rates aimed at reestablishing payment parity

Because consumers have been shown to use reference points to evaluate a service, a relevant area for further research is to explore how IRP is formed for continuously provided services One of the determinants of IRP is the type of pricing scheme that the service provider offers and what consumers adopt[3] When consumers adopt a usage-independent fixed fee or access charge (e g , Internet service), the prices that competing providers charge may serve as a basis for comparison Consumers may also convert the fixed (e g , monthly) fee into a dollar per unit of expected consumption (e g , dollar per minute) and use it as an IRP to monitor their usage pattern (Bolton and Lemon 1999) For a purely usage-based pricing scheme (e g , calling card, metered parking), IRP is likely a weighted average of prior usage–based payments, recent payments tend to receive greater weights (e g , first two terms in Equation 1)

When consumers adopt a two-part pricing scheme for a service (e g , mobile communication), a question that arises is whether they retain two separate IRPs, one for the fixed part and another for the variable component, or integrate the two components into a single IRP Factors that may influence the formation of either a single IRP or multiple IRPs include (1) the relative magnitude of the fixed and the variable part of the price, (2) the consumer's need for controlling spending for the expense category (e g , monthly cellular phone bills), and (3) the extent to which consumers link the amount spent with actual usage When the variable part of the price is small compared with the fixed component and when the need to control the budget is high, consumers may retain an integrated IRP for the service category However, when consumers' propensity to link price with usage is strong, consumers may retain separate IRPs for the fixed and variable components On the basis of our preceding discussion, we offer the following proposition

> P_1 For continuously provided services, IRP depends on the pricing scheme adopted
>
> (a) For a fixed-fee option, IRP is a function of competitors' prices for similar services, in addition, consumers retain IRP as a dollar per unit of expected usage for monitoring actual usage
>
> (b) For a strictly variable pricing, IRP is a recency-weighted average of amount spent in the past
>
> (c) For a two-part pricing scheme, consumers retain either dual IRPs or a single IRP, depending on the relative magnitude of each part, budget importance, and perceived price–usage equity

Integration of Antecedents

In the preceding sections, we identified several antecedents of reference price We now review the literature that has investigated the mechanisms by which consumers integrate the input information to form and/or update a reference point

Theoretical perspectives Researchers have adopted one of two theoretical perspectives to study how consumers construct and update IRP One perspective uses theories from social psychology (e g , Parducci 1965, Sherif and Hovland 1964), and the other relies more on economic theories on the formation of price expectations (e g , Muth 1961, Nerlove 1958) The psychological perspective uses assimilation–contrast theory (Sherif and Hovland 1964) to investigate how consumers integrate external information into their IRP (e g , Lichtenstein and Bearden 1989) The theory suggests that for a given quality level, a consumer has a distribution of prices that are considered acceptable The new price information is assimilated only if the observed price is judged as belonging to that distribution, the distribution of IRP is then updated in a manner akin to Bayesian updating Several researchers have attempted to investigate the assimilation process empirically as a function of the distributional properties of price Kalyanaram and Little (1994) find that in the unsweetened drinks category, consumers assimilate a price if it falls within approximately 75 times the price variability of the product

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[3] For expositional ease, we assume that pricing scheme is exogenous When a firm offers multiple pricing schemes, the scheme that consumers adopt likely depends on their expected use of the service (see, e g , Danaher 2002)

Kalwani and Yim (1992) find that consumers assimilate prices that are within ±4% of the regular price of the brand Han, Gupta, and Lehmann (2001) propose that the thresholds for assimilating prices are "fuzzy" or probabilistic

The assimilation–contrast theory was later augmented by range theory (Volkmann 1951) and range-frequency theory (Parducci 1965) that make predictions about the effects of the properties of the acceptable price range (e g , end points and distributions) on price judgments Recent marketing applications of these theories have shown that the assimilation (i e , judgment) of a purchase price depends on the end points of the price distribution (Janiszewski and Lichtenstein 1999) and on the frequency distribution of prices (Niedrich, Sharma, and Wedell 2001)

Economists' views of integration of previously acquired price information in forming price expectations are based on economic interactions between the buyer and the seller For example, the "rational expectation" model (Muth 1961) suggests that consumers form expectations using the same decision rules that firms use Therefore, the current price (set by firms) is an unbiased predictor of the price consumers expect to pay Although several researchers in marketing have used this model to estimate reference price equations for FPPG, the empirical support of the rational expectation model is somewhat mixed (see Briesch et al 1997, Jacobson and Obermiller 1990, Kalwani et al 1990, Winer 1985, 1986)

The "adaptive expectation" model (Nerlove 1958) introduces a mechanism by which consumers can adjust their prior expectations on the basis of the discrepancy between the observed and the expected prices A consumer's expected price at time t can be expressed as follows

$$(2) \qquad IRP_t = IRP_{(t-1)} + \beta_{AE}\left[P_{(t-1)} - IRP_{(t-1)}\right]$$

Note the similarity between the adaptive expectation model and a model derived from assimilation–contrast theory For a given difference between an observed price and IRP, the parameter β_{AE} can be viewed as an assimilation parameter If the parameter is close to zero, consumers are unaffected by the difference between IRP and P, and a contrast is deemed to have occurred Conversely, a high value of β_{AE} indicates that the observed price is assimilated Note that by rearranging terms in Equation 3, we obtain the following

$$(3) \qquad IRP_t = \beta_{AE} \times P_{(t-1)} + (1 - \beta_{AE})IRP_{(t-1)}$$

Therefore, consumers' reference price is a weighted average of the last period's reference price and observed price This form of updating has been used extensively in both modeling-based and behavioral research on reference price

Summary 4 Research on how previously encountered prices are integrated to form a reference price has produced the following results

- Assimilation contrast theory and the adaptive expectation model seem to depict the process of integration of prior prices and contextual information accurately
- Consumers update their reference prices (a) by weighting their existing reference price and the observed prices and (b) by factoring in a price trend observed from prior prices

Store environment moderators In addition to integrating previously encountered information (e g , prices) temporally, consumers contemporaneously integrate contextual information available in the store environment to form IRP One stream of research involving the contextual influences on IRP has been in the area of retailer-provided advertised reference point (ARP) In many product categories, retailers explicitly provide ARP at the point of purchase to encourage either competitive comparisons (e g , "compare at") or temporal comparisons ("was–now") of the actual purchase price (Biswas and Blair 1991, Lichtenstein and Bearden 1989, Mayhew and Winer 1992) Researchers theorize that ARP is first assimilated into consumers' IRP, which in turn influences purchase behavior or evaluations (e g , Lichtenstein and Bearden 1989, Urbany, Bearden, and Weilbaker 1988) The assimilation process is captured in Equation 4

$$(4) \qquad IPR_t = \omega \times ARP_t + (1 - \omega) \times IRP_{t-1}$$

The assumption is that a consumer enters a purchase environment with a prior IRP and adjusts it on the basis of the retailer's ARP The weight ϖ, $0 \leq \varpi \leq 1$, signifies the extent to which the seller-provided ARP has an effect on consumers' IRP The ability of ARP to influence IRP is found to be affected by the plausibility of the ARP (Urbany, Bearden, and Weilbaker 1988), the difference between the ARP and the actual selling price (Kopalle and Lindsey-Mullikin 2003), and the semantic cues (e g , was–now versus compare at) that retailers use to frame the sale (Lichtenstein, Burton, and Karson 1991) The literature on ARP is vast and has been reviewed and meta-analyzed in recent articles (see, e g , Grewal, Monroe, and Krishnan 1998)

Bearden, Carlson, and Hardesty (2003) examine the effects of multiple ARPs for automobiles (e g , dealer invoice price and manufacturer suggested retail price) on the judgment of an offer's fairness, they find that invoice price is more likely to be assimilated than manufacturer suggested retail price In an Internet auction context, the provision of a reserve price, compared with a minimum bid, has been shown to raise the average bid When both reserve and minimum bid are provided, the reserve is found to have a greater effect on the final bid (Kamins, Dreze, and Folkes 2004)

In addition to ARP, the retail environment provides a variety of other external price stimuli (i e , ERPs), which consumers integrate when forming a reference point Rajendran and Tellis (1994) explicitly model a context-based reference price and, on the basis of model fit, conclude that consumers use the lowest price in the category as an ERP Mayhew and Winer (1992) suggest that the retailer-provided "regular" price of a brand serves as its ERP Hardie, Johnson, and Fader (1993) propose that the current price of the brand chosen on the previous purchase occasion is a relevant ERP

Because a purchase environment typically provides a large amount of information, consumers must be selective in their choice of which pieces of externally available information they attend to and assimilate in their IRP An important determinant of selectivity is the size of a consumer's consideration set Because consumers are expected to pay greater attention to the prices of brands they purchase more frequently, Mazumdar and Papatla (1995, 2000) propose a model in which current prices are weighted by the respective shares of purchases devoted to a brand Deal-sensitive consumers may also be selective by integrating prices of only those brands that are on sale (i e , featured or displayed) during a purchase occasion (Bolton 1989) Recent studies have also shown that when a purchase environment does not contain diagnostic price information, consumers unknowingly integrate "incidental" price information (e g , prices of completely unrelated products) (Nunes and Boatwright 2004)

Summary 5 The findings on the integration of information at the store environment are summarized as follows

- Retailer-provided ARP that exceeds the selling price raises the consumer's IRP, even when the ARP is deemed to be exaggerated The effect of ARP on IRP is nonlinear, it has an inverted-U shape A moderately discrepant ARP has a stronger impact on IRP than either very similar or very dissimilar (i e , implausibly high) ARP
- The use of semantics aimed at competitive comparison (i e , compare at) is more effective in raising IRP than is the use of temporal comparisons (i e , was–now) Cues that are distinctive in relation to the competition and have low consistency have stronger effects on IRP
- In an automobile purchase context, the seller's invoice cost information is more readily integrated into an IRP than is a manufacturer's list price In an Internet auction context, reserve prices are more readily integrated into an IRP than is a minimum bid
- When faced with a large amount of externally available information, consumers are selective in deciding which pieces of contextually provided information are salient Customers who are loyal to a few brands integrate prices of only the favorite brands, whereas switchers tend to integrate prices of promoted brands In addition, lacking diagnostic information in the purchase environment, consumers unwittingly integrate readily available incidental and irrelevant price information

Product category moderators Other than the investigations of the assimilation of ARP, which sellers of durable products often provide, there is practically no research on how different pieces of information for durable products are integrated We suggested previously that attribute differences are a significant predictor of IRP for durables An important research question is how consumers integrate the attribute information in constructing an IRP as they sequentially evaluate attributes of different models of a durable product For example, consumers who are interested in buying a personal computer may begin with a default option and then adjust their IRPs upward or downward as they consider either adding or subtracting attributes Park, Jun, and MacInnis (2000) consider two default alternatives a loaded model from which consumers subtract and a base model to which consumers add They find that a loaded-model default yields higher prices paid and more optional attributes included as a result of insufficient adjustment from the initial anchor This finding can be extended in the context of reference price

For services, a fertile area for further research is to investigate how the fixed and variable parts of a two-part service price are integrated (see P_1) Literature on partitioned pricing (e g , Morwitz, Greenleaf, and Johnson 1998) suggests that consumers can use as an anchor either the fixed or the variable component and then insufficiently adjust for the other component of the price Which of the two components of price serves as an initial anchor may depend on their relative magnitudes In addition, when the fixed part serves as an anchor, the degree of adjustment of the variable part may depend on how frequently consumers pay the variable part and the magnitude of the variable portion when they do The frequency effect may also be stronger than the magnitude effect because frequent payment of a moderate variable fee (in addition to the fixed fee) is more likely assimilated into IRP than rare occurrences of large magnitude

P_2 (a) IRP for a durable product depends on the default option that serves as an initial anchor from which consumers insufficiently adjust their IRPs upward or downward on the basis of addition or deletion of product features, respectively (b) In integrating the fixed and the variable part of two-part prices of services, consumers use either the fixed or the variable part as an anchor depending on their relative magnitude and then insufficiently adjust upward to account for the other part Frequent payment of a moderate variable fee is more likely assimilated into IRP than are rare occurrences of large magnitude

Mental Representations of Reference Price

Researchers typically assume that a reference price is stored in memory in a numeric form and at the brand or item level (e g , a 64-ounce liquid Tide normally sells for approximately $5) We now consider other forms and levels of IRP and discuss when these alternative representations may occur

Numeric versus nonnumeric forms of IRP Price standards may not always be stored in shoppers' minds as "precise quantitative prices" (Dickson and Sawyer 1990, p. 51) Price information is also encoded in memory as price ranks (e g., Tide is usually more expensive than Wisk) or as price beliefs (e g , Wisk is frequently on sale) Mazumdar and Monroe (1990) show that when people acquire price information incidentally (rather than under directed learning), they are more accurate in recalling price ranks than in estimating numerical prices

A better understanding of the alternative forms of IRP may require further investigation on at least two fronts First, research should investigate how prices are encoded at different stages of a purchase process For example, price encoding during the initial stages of information search may result in prices being encoded at a more sensory level without strong associations with other information In later stages, consumers may integrate price with nonprice information, which leads to a more evaluative representation of price (e g , a Kenmore dishwasher is a good value for the money) The second potential area of inquiry is how consumers extract meaning from numeric price information (e g , Schindler and Kirby 1997, Thomas and Morwitz 2005) or adaptively convert price evaluations (e g , prices are "reasonable" in this restaurant) to numeric price estimates

Levels of IRP Although IRP is typically modeled at the brand level, reference price may also be represented in memory at more aggregate levels We present a hierarchy of IRP levels and discuss the contexts in which IRP may be conceptualized at each of these levels Economists have proposed a two-stage purchase process in which consumers first decide how much to budget for an expenditure category and then decide which item within that category to purchase (e g , Deaton and Muellbauer 1980) Thus, a consumer may set spending limits that represent how much he or she wants to allocate to different expenditure categories (e g , weekly grocery shopping, Christmas shopping, eating out) The spending limit or the mental budget may serve as a reference point for monitoring the actual spending (Heath and Soll 1996, Thaler 1980) and may also help time-constrained consumers simplify the task of price comparison

The reference price may also be encoded at a product category level, and it may be an average of prices of different brands (Monroe 1973) or the price frequently charged in a category (Urbany and Dickson 1991) Consumers may retain a category-specific reference price in product classes with low variability in brand quality and price, because small differences across brands may not justify the cognitive burden of attending to and retaining price information for several brands in memory

As we noted previously, IRP is typically conceptualized at the brand level Indeed, a brand-specific model of IRP has been shown to provide the best fit for data in several grocery product categories (Briesch et al 1997) Unlike a category-level IRP, the brand-specific IRP assumes that each brand has its own reference point Substantively, this conceptualization of IRP implies that consumers are interested in capitalizing on price and quality or unit price differences across brands Within the brand- and item-specific IRP, consumers may also retain separate reference points for promotional and regular prices

> P_3 (a) Consumers retain IRP in both numeric and evaluative forms The form changes from a numeric form to a more evaluative form with repetitive purchase experiences Consumers use the numeric structure (e g , spatial location of digits) of price to form price evaluations or to derive numeric price estimates from evaluations (b) The representations of IRP in memory are ordered at different levels of aggregation (i e , spending level, product category level, and brand and item level) The level of aggregation in which IRP is represented depends on consumers' assessments of the cost and benefits of detailed price comparisons at the brand and item level

Section summary A summary of what is known about the formation of reference price and what remains unresolved appears in Table 1 Additional research is necessary on how purchase occasions may moderate the IRP formation, how reference prices for services are formed, and how retail pricing strategies may shape consumers' reference prices Prior research has focused on the integration of information acquired over time and on integration of ARP and other contextual information More work is necessary to understand whether consumers retain reference points at more aggregate (e g , spending, category) levels and whether reference price could be represented in memory in nonnumeric forms as well

Retrieval and Use of IRP

We begin this section with a review of existing research on the moderating role of accessibility of IRP in memory in consumers' relative use of IRP versus ERP We then identify the research gaps, examine how different purchase tasks may influence the IRP retrieval process, and consider the biases in consumers' price retrieval process

Accessibility and Diagnosticity Moderators

The extent to which consumers use an IRP to make a purchase decision depends on the accessibility of price in memory (e g , Biehal and Chakravarti 1983) and the perceived appropriateness of the remembered price versus the information available externally when making a price judgment (Feldman and Lynch 1988) To investigate the extent to which consumers use memory versus external information, researchers have used a hybrid (of IRP and ERP) model of reference price and have identified factors that determine the differential weights that consumers assign to memory versus external information Supporting the accessibility–diagnosticity principle, consumers who devote their purchase share to only a few brands are found to use IRP (or temporal) more than ERP (or contextual) reference price (Mazumdar and Papatla 2000, Rajendran and Tellis 1994) Driven by their idiosyncratic preference for certain brands, these consumers do not consider contextual prices of other brands salient for price judgment, and therefore they tend to use their favorite brands' prior prices as reference points Moreover, being focused on only a few brands, these consumers can more readily remember prior prices of their favorite brands than consumers who tend to switch across a large number of different brands

Mazumdar and Papatla (2000) also find that consumers who primarily buy during promotions tend to make greater use of external information In addition, categories that are characterized by higher absolute price levels, shorter interpurchase time, and more stable prices (i e , less frequent promotions) are associated with greater use of memory than external information, and vice versa Kumar, Karande, and Reinartz (1998) show that the relative use of IRP and ERP is also moderated by a household's inventory position

> Summary 6 Research on the differential use of memory for prior prices versus externally available information has produced the following findings
>
> - Consumers use both memory and external information, but they assign weights to each that depend on consumer and product characteristics
> - The weight placed on memory (relative to external information) is related (a) negatively to the size of the consumer's consideration set, (b) negatively to the frequency of purchases during promotions such as features and displays, (c) positively to the price level of the product cate-

TABLE 1
Formation of Reference Price: Summaries of Prior Research Findings and Further Research Opportunities

Research Areas	Extent of Research	Prior Findings and Further Research
Antecedents		
Purchase History	Extensive	Effects of prior prices, promotions, and recency of purchase are well established (Summary 1)
Contextual Moderators		
•Purchase occasion	Low	Further research moderating effects of different shopping occasions (e g , planned versus unplanned) on the roles of prior prices and promotions on IRP
•Store environment	Moderate	Effects of depth, frequency, and framing of promotions on IRP have been demonstrated (Summary 2) Further research effects of store pricing policy (hi–lo versus EDLP) on IRP
•Product category	Durables moderate	Effects of economic conditions, technology, and attribute configuration have been demonstrated (Summary 3) Further research effects of input costs, externalities, and default options on IRP
	Services low	Further research effects of pricing schemes (e g , fixed, variable, two-part pricing) on IRP (P_1)
Integration		
Purchase History	Extensive	Temporal integration is captured well by the adaptive expectation model and assimilation–contrast theory (Summary 4)
Contextual Moderators		
•Store environment	Extensive	Effects of ARP on IRP, the weighting of contextual information, and the influence of irrelevant information are well established (Summary 5)
•Product category	Durables low	Further research investigating the anchoring effects of a default option and sequential addition/deletion of attributes on IRP for durables (P_{2a})
	Services low	Further research investigating the integration of two-part prices of services (P_{2b})
Representations	Low	Further research identifying alternative forms (e g , numeric versus nonnumeric) and levels (budget, category, brand/item) of IRP (P_3)

> gory, (d) negatively to the increase of interpurchase time of the category, and (e) negatively to the frequency of promotions in the category

Because prior research has focused on the retrieval and use of price in the context of brand choice, there is no known research on how IRP is retrieved in other types of purchase tasks In addition, research on less effortful price retrieval and the factors that bias the retrieval process is somewhat sparse

Purchase Task Moderator

Although the retrieval and use of IRP is relevant in many purchase contexts, we consider only two purchase tasks here store selection decision and consideration set formation[4] The former task is performed outside of the store, and the latter may take place either in the store or out of the store

Store choice decision Deciding which store to visit depends on factors such as store location, assortment and quality of products, overall price level of the store, and prices of specific brands As we noted previously, consumers retrieve store-specific reference prices to decide which store to visit Because the retrieval of store prices depends on consumers' prior experience with the store, consumers are prone to draw a sample of prices of product categories (or brands) from memory that they are more familiar with and place greater weights on these prices in judging the overall store price levels Moreover, the availability hypothesis (Tversky and Kahneman 1973) suggests that estimates of the probability that certain products will be on promotion depend on how easily the consumer can remember a previously encountered promotional episode Thus, promotional frequencies may be over- or underestimated on the basis of what a consumer readily remembers about a prior purchase experience When consumers make store choices (or switching) based on externally available price and promotional information (e g , feature advertisements), they may evaluate the attractiveness of the sale price by comparing it with prices previously paid in the store or prices charged by competing stores In either case, retrieval of prior and competitive prices is subject to the same set of previously discussed biases

Consideration set formation The decision to include certain items in the consideration set is influenced in large part by consumers' idiosyncratic preferences for specific brands and their prices When the consumer forms a consideration set before actually visiting the store, the decision to include or not to include a brand in the set is mostly memory based If the consumer forms the consideration set at the store, the decision to include a brand involves a mixed task in which recalled prices serve as reference points to judge the observed price of the same and other brands A research question that requires investigation is how consideration set size or the frequency of promotions of the brands within the set affects retrieval When the consideration set size is small (e g , due to strong brand loyalties), the consumer can recall the encoded prices more easily than when the set size is large This is also the case when the brands in the consideration set are infrequently promoted and their prices are relatively stable over time (Mazumdar and Papatla 2000, Rajendran and Tellis 1994)

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[4] These tasks are not independent Items in the consideration set may influence the store choice decision, and vice versa A brand choice task can be considered a special case of consideration set formation performed at the point of purchase Other tasks for which price retrieval is necessary include purchase timing decisions

> P_4 (a) In making a store choice decision, consumers retrieve store-specific reference prices as a basis for price comparison However, the retrieval of store-specific reference prices may be biased as a result of erroneous sampling caused by relative familiarity with prices of different product categories and retail promotional strategies (b) In consideration set formation, retrieval accuracy is moderated by the consideration set size and the frequency of promotions of the brands in the set

Heuristics and Biases in Price Retrieval

Retrieval heuristics In recent years, researchers have proposed retrieval processes that rely on simplifying heuristics (e g , Schwarz and Vaughn 2000) Monroe and Lee (1999) argue that in many low-involvement purchases, price memory is implicit in that it serves as an input to performing a task successfully without the consumer being aware of the input information Menon and Raghubir (2003) demonstrate that consumers use "ease of retrieval" as a heuristic to judge the appropriateness of the retrieved information, and the heuristic use occurs outside of awareness Mere accessibility serves as an input to judgment even when the source of the information is discounted Thus, factors that increase the ease of retrieval of previously encoded price information (e g , small consideration set, dichotomous promoted/regular prices) will increase the likelihood of consumers using prior prices as IRP In addition, as Menon and Raghubir (2003) note, if distant information is unexpectedly remembered, consumers may use the remembered information to make judgments

Biases in price retrieval We previously discussed how consumer perceptions of promotions may be distorted and how retrieval of store prices may be biased as a result of consumers' prior experiences and store promotions We now identify a few additional factors that may introduce biases in the retrieval of price One such factor is the way the price is structured (e g , product price, cost of delivery) Morwitz, Greenleaf, and Johnson (1998) argue that when the total price of a product is partitioned, consumers tend to allocate greater attention and processing resources to the product price, making it more memorable than the delivery cost component, thus resulting in retrieval biases Specifically, this study shows that consumers tend to underestimate (i e , recall a lower) total price more when the price is partitioned than when prices are aggregated This finding can be extended to two-part prices of services and product bundles that are composed of a core component and add-ons (Janiszewski and Cunha 2004)

Retrieval biases may also occur because of spatial locations of digits in price Recent research has shown that consumers convert the digits of price into an analog magnitude scale, and the spatial locations of the digits in price determine the extent to which the digits are attended to and processed and, therefore, recollected and used in price judgments (Dehaene 1997, Thomas and Morwitz 2005) The retrieval of previously encoded prices may also be influenced by interference caused by multiple tasks For example, a vacationer evaluating the online price of an airline ticket may be distracted by an advertisement that depicts a low-price offer for a hotel in the destination city An important research question is how consumers handle dual (retrieval) tasks and whether certain characteristics of the interfering tasks actually help retrieval

Biases may also occur when consumers use readily available nonprice information to infer IRP because prices are not accessible in memory Prices can be inferred from product quality levels (Bettman, John, and Scott 1985) or distinctive product features (e g , class, make, or trim level of an automobile) (Murray and Brown 2001) However, literature on intuitive covariation assessment in social psychology has shown that people often detect illusory relationships because of deeply entrenched beliefs, which results in biased inferences (Crocker 1981) Thus

> P_5 (a) In low-involvement purchase tasks, price memory (i e , IRP) is implicit and is retrieved outside of awareness by invoking heuristics such as ease of retrieval (b) Retrieval and use of IRP is biased because of partitioning of price (i e , consumer's cost), spatial positions of the digits in price, and task interferences (c) Consumers may infer IRPs of a brand based on available nonprice information However, the inference may be biased as a result of consumers' prior beliefs about the relationship between price and these nonprice attributes

Section summary Research on the accessibility–diagnosticity moderators of the relative use of IRP and ERP is fairly extensive (Summary 6) However, more research on how IRP is retrieved from memory under different task contingencies is necessary We consider store choice and consideration set formation and relate these tasks to certain types of price encoding that are activated in memory (P_4) We also identify several variables that may influence and bias the retrieval process (P_5)

Effects of Reference Price

Research using panel data has focused mainly on reference price effects on consumer brand choice decisions and, to a lesser extent, on purchase quantity and purchase-timing decisions The behavioral stream has studied the effects of reference price on constructs such as perceived value of the offer, intentions to search for lower prices, and purchase intention (for a review, see Grewal, Monroe, and Krishnan 1998)

Consumer Brand Choice Decision

Increased availability of individual-level panel data spurred a flurry of research activity on reference price effects on consumer brand choice decisions A summary of this research stream appears in Table 2 Because reference price is unobserved, its effect is typically inferred by comparing the fit of a brand choice model that contains no reference price with that of a model that incorporates a reference price term The utility specification of the baseline model (Equation 5 in Table 2) contains the usual price and promotional variables, consumer preference, and brand loyalty (Guadagni and Little 1983)

Symmetric "sticker shock" effect Winer (1986) was the first to propose a "sticker shock" model of reference price, which includes an additional term that captures the difference between the brand's reference price and its purchase price (Equation 6 in Table 2) The assumption is that a positive difference between the reference price and the purchase price increases the utility of the item, and a negative difference lowers it However, responsiveness to a positive difference is assumed to be the same as that to an equal negative difference

As we show in Table 2, several researchers have used this particular specification and found that the model outperforms the baseline model, thus making the sticker shock effect of reference price empirically generalizable (Kalyanaram and Winer 1995) However, Lattin and Bucklin (1989) find that the inclusion of a similar reference effect of promotion (i e , actual versus expected promotion) makes the symmetric reference price effect not significant Bell and Lattin (2000) find that after they account for heterogeneity in price sensitivities, the sticker shock effect is somewhat reduced, but it remains significant Chang, Siddarth, and Weinberg (1999) find that the sticker shock effect in brand choice disappears when the heterogeneity of consumers' purchase timings is taken into account

Asymmetric reference price effect According to prospect theory (Kahneman and Tversky 1979, Thaler 1985), when an observed price is higher (lower) than the reference price, consumers encode it as a loss (gain) Loss aversion dictates that consumers are more sensitive to losses than to gains The asymmetric utility function appears in Equation 7 in Table 2 This table shows that the evidence of loss aversion is mixed When consumers are segmented on the basis of their brand preferences (or loyalties) or their price sensitivities, either the loss aversion effect is reduced or it disappears (Bell and Lattin 2000, Krishnamurthi, Mazumdar, and Raj 1992, Mazumdar and Papatla 1995)

Purchase Quantity Decisions

Krishnamurthi, Mazumdar, and Raj (1992) empirically investigate the reference price effects on purchase quantity decisions in frequently purchased product categories The study finds a significant effect of reference price, but the effect is mediated by consumer brand loyalty and household inventory levels When household inventory reaches a stock-out level, brand-loyal consumers are found to be more sensitive to perceived gains than to losses when shopping for their favorite brands However, brand-loyal consumers are more sensitive to losses when the purchase quantity decision is made before the stock-out No such difference is found for the switcher segments

Purchase-Timing Decisions

Bell and Bucklin (1999) consider how reference price affects purchase timing Using Loewenstein's (1988) framework of intertemporal choice, Bell and Bucklin posit that at every purchase occasion, consumers compare the relative attractiveness of buying into a category with the prospect of postponing the purchase Thus, expected category attractiveness acts as the benchmark and is assumed to be a function of individual background factors (e g , inventory) and marketing-mix variables (e g , promotions) The study finds that during a given shopping visit, the purchase postponement that results from a perceived loss (i e , negative difference between actual category value and the reference category value) significantly exceeds the purchase acceleration that takes place when a gain is perceived

Summary 7 (a) The symmetric sticker shock effect of reference price on brand choice is empirically generalizable However, the evidence for loss aversion is mixed (b) The effect of reference price on purchase quantity is mediated by household inventory position and brand loyalty (c) Reference price has a significant effect on consumers' purchase-timing decisions, in which they evaluate the "attractiveness" for buying into a category now or later

Although there is considerable research demonstrating reference price effect on brand choice decisions, little is known about how reference price affects store choice decisions and consideration set formation The relevant questions here are, What are the likely decision sequences? Are the antecedents that are identified in brand choice models still relevant here? If not, what additional factors might be relevant? and How might these factors interact with reference price? Further research should also investigate (1) the role of reference prices in services and durable goods purchase decisions and (2) the effects of reference price in other evaluations and attributions

Service and Durable Purchases

Research on the reference price effects on purchase quantity can be extended to include service quantity (i e , usage) decisions as well Prior research has found that the actual usage depends on consumers' price expectations and satisfaction with the overall payment equity (Bolton and Lemon 1999) Further research might also investigate the reference price effects on service quantity decisions under different pricing policies that are postulated to shape consumers' price expectations (P_1) The methodological challenge here is that reference price formation may not be exogenous to usage expectation and prior usage level

Purchase timing is a critical decision for most durable product purchases A fertile area for further research is to investigate reference price effects on durable goods purchase timing In the past, researchers have used a conditional hazard function approach to investigate timing of frequently purchased products (Jain and Vilcassim 1991)

TABLE 2
Modeling-Based Research on the Effects of Reference Price on Brand Choice

Models	Utility Specifications	Sample Studies	Effects Studied	Product Categories	Special Features	Results
Baseline	(5) $U_{iHt} = \beta_{0,i} + \beta_p \times Price_{iHt}$ $+ \beta_{Prom} \times Prom_{iHt}$ $+ \beta_{Loy} \times Loyalty_{iHt} + \varepsilon_{iHt}$	Guadagni and Little (1983)	No reference price effect			
Symmetric sticker shock model	(6) $U_{iHt} = \beta_{0,i} + \beta_p \times Price_{iHt}$ $+ \beta_{Prom} \times Prom_{iHt}$ $+ \beta_{Loy} \times Loyalty_{iHt}$ $+ \beta_{ref}(RP_{iHt} - Price_{iHt})$ $+ \varepsilon_{iHt}$	Winer (1986)	Sticker shock	Coffee (three brands)	Multiple price expectation models	Significant sticker shock effect for two brands
		Lattin and Bucklin (1989)	Sticker shock and reference promotions	Ground coffee (ten stockkeeping units)	Includes promotion expectation term	Reference price is not significant in the presence of promotion effect
		Mayhew and Winer (1992)	Sticker shock	Yogurt	Multiple reference price (IRP and ERP)	Both IRP and ERP effects are significant
		Rajendran and Tellis (1994)	Sticker shock	Salted and unsalted saltine crackers	Multiple reference prices	Significant sticker shock effects when ERP is included
		Krishnamurthi, Mazumdar, and Raj (1992)	Sticker shock	Ground coffee and an undisclosed category	Consumers segmented on the basis of brand loyalty, brand-specific effects	Significant sticker shock effect for both loyals and switchers
		Chang, Siddarth, and Weinberg (1999)	Sticker shock	Yogurt, ketchup	Purchase-timing heterogeneity accounted for	Sticker shock effect is not significant
		Bell and Lattin (2000)	Sticker shock	Orange juice, bacon, butter, margarine, crackers, sugar, paper towel, ice cream, detergent, hot dogs, tissue, soft drinks	Price-sensitivity heterogeneity accounted for	Sticker shock effect is significant in 10 of 12 categories
Asymmetric reference price model	(7) $U_{iHt} = \beta_{0,i} + \beta_p \times Price_{iHt}$ $+ \beta_{Prom} \times Prom_{iHt}$ $+ \beta_{Loy} \times Loyalty_{iHt}$ $+ L_i \beta_L (Price_{iHt} - RP_{iHt})$ $+ G_i \beta_G (RP_{iHt} - Price_{iHt})$ $+ \varepsilon_{iHt}$ where $L_i = 1$ if $Price_{iHt} > RP_{iHt}$, 0 otherwise, $G_i = 1$ if $Price_{iHt} < RP_{iHt}$, 0 otherwise	Kalwani et al (1990)	Loss aversion	Ground coffee	Reference price is separately modeled	Loss aversion is supported
		Krishnamurthi, Mazumdar, and Raj (1992)	Loss aversion	Ground coffee and another undisclosed category	Consumers segmented on the basis of brand loyalty, brand-specific effects	Loss aversion is supported for one of six brands

TABLE 2
Continued

Models	Utility Specifications	Sample Studies	Effects Studied	Product Categories	Special Features	Results
		Hardie, Johnson, and Fader (1993)	Loss aversion in price and quality	Refrigerated orange juice	Reference price is a current price of a previously chosen brand	Loss aversion for both price and quality is supported However, quality loss is greater than price loss
		Kalyanaram and Little (1994)	Latitude of price acceptance, loss aversion	Sweetened and unsweetened drinks	Zone of indifference around the reference price	Latitude is supported, loss aversion is supported
		Mazumdar and Papatla (1995)	Loyalty-based segmentation of IRP and ERP use	Margarine, liquid detergent	Estimate brand loyalty threshold to assign to IRP or ERP segment	Brand loyalty influences IRP or ERP use Loss aversion is not supported in either segment
		Briesch et al (1997)	Identify the best-fitting reference price model	Peanut butter, liquid detergent, tissue, coffee	Heterogeneity accounted for	Brand-specific IRP provides the best fit for the data Loss aversion is not supported in the any of the four categories
		Mazumdar and Papatla (2000)	IRP- and ERP-based segmentation	Liquid detergent, ketchup, tissue, yogurt	Use of mixture model to segment consumers	Consumers are found to be segmented on the basis of IRP and ERP use Loss aversion is present in only one segment in each category
		Bell and Lattin (2000)	Loss aversion	See previous Bell and Lattin (2000) entry	Preference and price sensitivity accounted for	No evidence of loss aversion
		Erdem, Mayhew, and Sun (2001)	Consumer heterogeneity in gain and loss responsiveness	Ketchup, peanut butter, tuna	Considers cross-category correlations and accounts for consumer heterogeneity	Loss sensitivity is heterogeneous, reference price effects are correlated with other sensitivities

Research could use similar methodologies in which the reference price term and other variables of interest are included as covariates

Evaluations and Attributions

Brand extensions and brand equity Aside from the effects on purchase decisions, reference price may also influence evaluations of brand extensions Jun, MacInnis, and Park (2003) demonstrate that consumers' price expectations of a brand extension are affected by the price of the parent brand, and the effect is moderated by the parent brand's relative price in the parent category and the dispersion in prices in the extension category The parent brand's prices may also evoke quality associations and influence expectation of quality of the brand extension Reference price may also moderate the effects of frequent promotions on the long-term negative impact on brand equity (Jedidi, Mela, and Gupta 1999)

Attributions Nonpurchase influences of reference price include consumers' attributions of fairness of the price that a seller charges and imputation of the seller's motives behind raising or lowering prices Urbany, Madden, and Dickson (1989) find that consumers appear more ready to accept price increases when sellers provide explicit cost justifications Campbell (1999) demonstrates that people are more likely to judge the increased price as unfair when they infer that the seller is attempting to earn greater-than-normal profits However, the seller's reputation moderates this effect Consumers accord the benefit of the doubt to more reputable sellers Xia, Monroe, and Cox (2004) propose that perceived unfairness of a price results in lower value perception and evokes negative emotions, which may result in behavioral responses such as withdrawing from a purchase, spreading negative word of mouth, and even engaging in legal actions This stream of literature can be extended to further study whether reference prices influence other inferences, including consumers' perceptions of sellers' deceptive practices

Section summary The research on reference price effect on consumer brand choice decisions is extensive There is also evidence of effects on purchase quantity and category purchase The purchase quantity effects should be extended to service usage, and purchase-timing effects need to be tested in the context of durable purchases The role of reference price on other purchase decisions, such as store choice and consideration set formation, should also be examined In addition, research is needed to understand how reference prices may influence evaluations of brand extensions and brand equity

Methodological Challenges

Because IRP is a latent construct, its inferred existence and effects are inevitably open to questions about the appropriateness of methodologies used to model the construct and measure these effects One such question is directed at the stream of research that uses panel data to infer reference price effects, and it is related to the role of customers' (cross-sectional) heterogeneity confounding the reference price effects There are also questions about the effects of reference price overlapping with the effects of other price-related constructs

Confounding Effects of Customer Heterogeneity

When assessing reference price effects, researchers model reference price using temporal data (e g , prior prices paid, promotions, stores visited), which differ across consumers because of differences in price sensitivities, brand preferences, loyalties, and purchase timing The reference price effects are estimated by pooling cross-sectional purchase history data for all households This approach introduces potential confounding effects that arise from customers' heterogeneity in their price sensitivities (Bell and Lattin 2000) and, thus, in their purchase timings (Chang, Siddarth, and Weinberg 1999)

Heterogeneity and loss aversion Bell and Lattin (2000) contend that price sensitive (insensitive) consumers have lower (higher) reference points because, on average, they pay a lower (higher) price Therefore, these consumers experience more losses (gains) in their purchase histories Thus, the inferred loss aversion in the results may simply be due to the cross-sectional heterogeneity in price sensitivities rather than to the same consumer exhibiting a greater sensitivity to losses than to gains In addressing the heterogeneity issue, Bell and Lattin (2000) consider both common (occasion-specific) and brand-specific reference price formulations (note that the latter permits each brand to have its own reference price and therefore is less correlated with price sensitivity) and use a mixture model (Kamakura and Russell 1989) to account for heterogeneity in not only price sensitivity but also preference They find that ignoring heterogeneity in price sensitivities significantly overstates the loss aversion parameter, but it remains significant in the refrigerated orange juice category The study includes additional product categories, and in all 11 categories, the loss aversion parameters in multisegment models are smaller than those in single-segment models (i e , no heterogeneity) and are significant in only 6 of the 11 categories Other studies that have accounted for heterogeneity also find that the loss aversion phenomenon is attenuated, and in some cases, the gain parameters are greater than the absolute values of loss parameters (e g , Krishnamurthi, Mazumdar, and Raj 1992, Mazumdar and Papatla 2000)

Heterogeneity and symmetric sticker shock effect The sticker shock model assumes that the responsiveness to gains is the same as the responsiveness to losses Bell and Lattin (2000) report significant sticker shock effect in 10 of 12 categories after accounting for consumer heterogeneity in price responsiveness Briesch and colleagues (1997) use a latent class mixture model to account for heterogeneity and find that the symmetric reference price model fits better in all four categories Krishnamurthi, Mazumdar, and Raj (1992) carry out a priori segmentation of consumers into loyals and switchers and allow for each brand to have its own price and sticker shock parameters This study shows that for all six brands in two product categories, the symmetric reference price model performs significantly better than the model that does not include a sticker shock term

Chang, Siddarth, and Weinberg (1999) consider purchase-timing heterogeneity in which price sensitive consumers time their purchases to capitalize on lower prices and, thus, have a lower reference price than consumers who do not. Using simulated data, the authors find that when purchase timing and price responsiveness heterogeneities are not accounted for, there is a significant upward bias in the reference price estimate. Although the existence of purchase-timing heterogeneity is found to be sufficient for the bias to occur, the price responsiveness heterogeneity alone is not sufficient (i.e., the range of price sensitivities must be beyond what is observed in prior research) for the bias to be significant.

Note that reference price effects may manifest in brand choice (e.g., switching) and in purchase timing (e.g., purchase postponement or acceleration). Studies that use choice data account for heterogeneity in price sensitivities and brand preference, conditional on the models being estimated only on choice data (Bell and Lattin 2000; Briesch et al. 1997). As we noted previously, these studies find that the loss aversion effect of reference price is significantly attenuated, but the symmetric reference price effect remains significant. Bell and Bucklin (1999) focus exclusively on purchase timing and find a significant reference price effect in consumers' decision to buy now or later. Thus, if purchase timing is explicitly included in the model and if consumers exhibit a propensity to delay a purchase to avoid a loss and to accelerate a purchase to capitalize on a gain, the reference price effect in brand choice should be reduced or even disappear (e.g., Chang, Siddarth, and Weinberg 1999).

Summary 8: The confounding roles of consumer heterogeneity in the estimation of loss aversion and sticker shock effects are as follows:

- The loss aversion effect in brand choice models is significantly attenuated (and may even disappear) when consumer price response heterogeneity is considered.
- Accounting for heterogeneity in consumer price sensitivities reduces the sticker shock effect in brand choice models, but the effect remains significant.
- When reference price effect is present in purchase timing, ignoring purchase-timing heterogeneity overstates the reference price effects (both loss aversion and sticker shock) in brand choice.

Given the confounding effects of consumer heterogeneity found in these studies, two research issues must be resolved. The first issue is whether the effect proposed by prospect theory is indeed present in frequently purchased grocery product categories. Because the attenuating effect of heterogeneity has been demonstrated in many product categories, adding more product categories to verify the existence of the loss aversion phenomenon may not be fruitful. Instead, the answer may lie in the design of controlled experiments similar to that of Kalwani and Yim (1992) that can experimentally induce the reference points, verify their existence through manipulation checks, and assess whether people exhibit loss aversion in their choice decisions.

Second, reference price research that uses panel data requires a comprehensive assessment of the role of heterogeneity in the estimation of not only the loss aversion effect but also the symmetric reference price effect. It is important to identify the different sources of individual-level heterogeneity, such as price responsiveness, purchase timing, and brand preference. In addition, a comprehensive study should use multiple methods to account for heterogeneity. These methods could range from a priori classification of segments (e.g., loyals versus switchers) to more rigorous statistical procedures, such as random coefficient models or latent class mixture models. The random coefficient model should permit different assumptions about variables that are susceptible to heterogeneity and their distributional characteristics.

Overlapping Constructs

In addition to cross-sectional heterogeneity confounding the reference price effect, there is also a question of overlap between the reference price construct and other price-related constructs, such as price and promotion sensitivities. Erdem, Mayhew, and Sun (2001) find that the reference price effects for both gains and losses are significantly correlated with consumer sensitivities to price, promotions (i.e., features and displays), and brand loyalty both within and across categories. Although the authors conclude (p. 451) that "reference price sensitivity is distinct from other sensitivities," it would be useful to investigate further the causal links among price and promotional sensitivities, brand loyalties, and reference price effects.

Discussion and Conclusion

We provide an assessment of our current understanding of (1) how reference prices are formed, (2) how reference prices are retrieved and used, and (3) the effects of reference price. We offer summaries of prior findings and an agenda for further research, which includes a set of propositions. We also provide a critical assessment of the role of customer heterogeneity, which has raised questions about the validity of reference price effects found in modeling-based research. In this section, we discuss the alternative domains of the reference price construct and briefly review the normative models that have incorporated reference price into the demand function to draw managerial implications.

Domains of Reference Price Construct

In this review, we conceptualized reference price as price expectation, which is based on consumers' memory or contextual information. However, justifications of the reference price construct are also drawn from other theoretical domains that conceptualize reference points as normative and aspirational. A normative reference price may be the price that consumers consider fair or just (Bolton and Lemon 1999; Campbell 1999; Kahneman, Knetsch, and Thaler 1986). The judgment of fairness is determined not only by prior and competitive prices but also by consumers' assessment of the seller's cost and what is deemed to be a normal profit (Bolton, Warlop, and Alba 2003; Thaler 1985). The dual entitlement principle (Kahneman, Knetsch, and Thaler 1986) suggests that manufacturers are expected to abide by community standards of cost and profit, and consumers "punish" errant sellers that stray from these norms. Xia, Monroe, and Cox (2004) have developed a conceptual framework for the price fairness construct that identifies the key factors influencing consumer price fairness and outcomes of perceived unfairness.

Aspiration-based adaptation levels have been conceptualized in organizational research (Cyert and March 1963). The level at which an organization aspires to perform depends on its prior aspirations, discrepancies between the aspired and actual performance, and how performance compares with that of others in the group (Mezias, Chen, and Murphy 2002). This view is also consistent with the social comparison theory, which postulates that entitlements received by an individual are compared with those received by others in the group (Major and Testa 1989). In a pricing context, aspirational reference price is therefore a function of not only the usual prior and contextual prices but also what others in a social group pay for the same or similar products. If someone pays a low price, the aspiration level of others in the social group is also adjusted downward, and vice versa.

The existence of multiple conceptualizations of reference price raises the question whether there are certain conditions under which one type of reference price is more likely to be evoked than others. We propose that the relative propensity to use one of the three types of reference price (i.e., expectation based, normative, and aspirational) is a function of (1) temporal stability or predictability of prices, (2) level of competition within a category, (3) price transparency, and (4) the extent to which a consumer is locked in to the consumption category. An expectation-based reference price is likely to be used in product categories that are characterized by a high level of competition (i.e., many alternatives), relatively stable prices over time, and transparent pricing. However, a fair or just price benchmark is likely to be evoked when a category is monopolistic or contains few competitors, when prices charged by competing firms lack transparency, and when consumers are locked in to the category because of either the essential nature of the product (e.g., medicine, gasoline) or long-term contracts. Finally, when firms use discriminatory pricing that lacks transparency (e.g., airline pricing, negotiated pricing), which causes significant variation in prices paid across consumers, aspirational benchmarks are likely to be evoked. All three conceptualizations of reference price may come into play in any given decision, though the specific factors or contexts we previously noted are likely to determine which reference price concept becomes more dominant.

Managerial Implications of Reference Price

A limitation of our framework is that it is not suitable to assess the profit-maximizing implications at the firm level explicitly. Therefore, it is useful to review selected studies that have developed analytical models to assess the profit implications for firms when reference price is included in the consumer demand function. Greenleaf (1995) shows that reference price effects can increase profits on promotions, and he demonstrates how a retailer can develop an optimal strategy for repeated promotions over time that maximizes profits from such effects. The study shows that in the presence of reference price effects, the optimal strategy of a monopolist is to institute a cyclical (high–low) pricing policy. Kopalle, Rao, and Assunção (1996) generalize this result to an oligopoly while considering customer heterogeneity in both reference price formation and differential weighting of gains and losses. They show that when heterogeneity has been accounted for, cyclical pricing policies are optimal. However, if the market consists only of loss-averse buyers, the optimal strategy is a constant price.

These findings suggest that reference price should be an important component of managerial decisions about pricing and promotional strategies. There is a growing interest in assessing the impacts of price promotions on category demand (Nijs et al. 2001), the long-term profitability of firms, and brand equity (Dekimpe and Hanssens 1995; Jedidi, Mela, and Gupta 1999). This stream of research can be augmented by incorporating reference price effects in the assessment of the impacts of promotions on long-term category expansion (or contraction) and profitability and the usual short-term effects.

In addition to the normative prescriptions, this review presents summaries and propositions that may offer useful managerial insights into the roles of reference price in consumer purchase decisions in different product categories. For example, this review proposes that attribute configurations of the default option influence the formation of IRP. In many online (e.g., computer) and in-store (e.g., automobile) purchases, firms can present a default option to create an initial anchor and control the sequence of subsequent additions or deletions of attributes. Likewise, firms can invoke consumer interest in a product bundle by framing a low price for the core component (e.g., central processing unit) that serves as an initial anchor for evaluating bundles.

For services, we propose that the pricing scheme (i.e., fixed, variable, or two-part) should significantly influence consumers' IRP, which in turn might influence consumers' usage of the service. A high fixed fee may encourage consumers to increase usage of a service so that it justifies the fee, whereas a variable fee may discourage heavy usage of the service. Firms (e.g., electronic retailers) may capitalize on the increased usage by advertising and cross-selling products to generate additional revenue. Conversely, firms (e.g., utilities) that want to discourage usage may inform users when their usage has exceeded their norms. Some of these propositions may also be useful in the development of normative models for services, in which IRP is a function of different pricing schemes and is included in the demand function. Profitability of a pricing scheme can be assessed under different cost structures and capacity constraints.

With respect to pricing and promotional strategies, many sellers routinely provide ARP to influence consumers' reference points. In addition, as we note in the review, a retailer can frame a selling price relative to the cost either by directly providing the cost information (e.g., invoice price) or by influencing consumers' perceptions of the retailer's cost (e.g., rollback prices). Our review also offers managerial guidance on how EDLP and hi–lo stores may compete. An EDLP strategy creates a favorable store-level reference point. Nevertheless, a hi–lo store can achieve a competitive advantage if it selects certain product categories in which it regularly offers deep and dichotomous discounts The goal here is to create a stable and accessible memory for low prices

The type of reference price a consumer uses and the effect of the reference price have been shown to vary across consumers, creating an opportunity for segmenting and targeting consumers on the basis of reference price Consumers can initially be divided into a reference price segment and a non–reference price segment and then can be characterized by behavioral (e g , price and promotion sensitivity, brand loyalty) and sociodemographic factors (Arora, Kopalle, and Kannan 2001, Erdem, Mayhew, and Sun 2001) Reference price consumers can be further segmented into an IRP and an ERP segment (Kumar, Karande, and Reinartz 1998, Mazumdar and Papatla 2000, Moon and Russell 2004) Because different reference price segments use different referents, firms should use appropriate strategies to target each segment A was–now framing is likely to be effective for an IRP segment, whereas a compare-at framing is more suited for ERP users who construct reference points at the point of purchase

Finally, we propose an expanded view of reference price that includes more aggregate levels of conceptualization, such as spending levels and product category-level IRP If consumers set a spending limit as a reference point for a purchase task (e g , family vacation), a strategy that asserts that the total spending will be below the limit is likely to be more effective than a strategy that focuses on prices of a specific component of the purchase In addition, consumers may also retain IRP in nonnumeric forms An understanding of the different representations of IRP is significant because price communication messages must be consistent with these representations Simply advertising a low price may not convey the notion that it represents a good value for the money

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Stefan Wuyts & Inge Geyskens

The Formation of Buyer–Supplier Relationships: Detailed Contract Drafting and Close Partner Selection

Firms face two strategic decisions when engaging in a new purchase transaction the decision whether to draft a detailed contract and the decision whether to select a partner with which they share a close tie The authors study how organizational culture affects these decisions and the effectiveness of these decisions in curtailing the partner's opportunistic behavior The results suggest that organizational culture exerts an important but different influence on both decisions Selecting a close partner shows a marked ability to hedge against partner opportunism, but beyond a certain point, it encourages the opportunism it is designed to discourage Contracting becomes effective only when a nonclose partner is selected and when the focal relationship is embedded in a network of close mutual contacts

In an era when product life cycles are short and markets become more specialized, the disadvantages of vertical integration become more acute In response, the past 20 years have witnessed an unprecedented growth worldwide in the number of hybrid governance modes—structures that are less arm's length than the typical market relationship but less tight than the relationships between parts of the same firm (e g , franchise arrangements, strategic alliances, joint ventures) Effectively structuring hybrid governance modes to inhibit the partner's opportunistic behavior represents a critical challenge for any firm In this respect, firms face two strategic choices (Ryall and Sampson 2003, Williamson 1991) First, they must choose the level of detail of the contractual agreement, which can range from a simple contract that conveys only the broad lines of exchange to an explicit contract that specifies as precisely as possible both parties' responsibilities and remedies for foreseeable contingencies Second, they must decide on the extent to which they wish to select a partner with which they have a close prior tie Ties may vary from the atomistic and socially detached relationship to the tie with a history of close collaboration [1]

The research to date has generated important insights into firms' choices among basic governance forms, such as hybrid governance modes versus vertical integration or market contracting (e g , Klein, Frazier, and Roth 1990), and into the extent to which firms draft detailed contracts during the formation phase of the relationship and rely on relational norms during the implementation phase of the relationship (e g , Lusch and Brown 1996) Yet notable gaps remain First, little is known about the relative effectiveness of the strategic decisions that firms make in structuring hybrid governance modes to hedge against the partner's opportunistic behavior from either an empirical or a theoretical point of view Empirically, relational governance measures, as opposed to contractual explicitness measures, often confound the governance decision per se (i e , choosing to interact with a close partner in the hope that it promotes the reliance on relational norms) with the quality of that decision (i e , reliance on relational norms to govern the relationship) Theoretically, some researchers argue that detailed contract drafting offers a way to protect against the partner's opportunism through the threat of legal enforcement (Joskow 1987), whereas others argue that detailed contracts are seldom used in practice because they are costly to draft and enforce (Macaulay 1963) In a similar vein, some authors posit that close partner selection is a more effective and less costly alternative to detailed contract drafting because it is a self-enforcing safeguard Others have made a case that close relationships have a "dark side" in that over time, ongoing business exchanges develop characteristics that serve to destabilize the relationship from within (e g , Dyer and Singh 1998) These conflicting views indicate a need for more research on the effectiveness of detailed contract drafting and close partner selection in curtailing the partner's opportunism

Second, there are unanswered questions about the influence patterns that exist between these two strategic choices Literature on relational governance suggests that prior close relationships substitute for costly, detailed contracts (e g , Dyer and Singh 1998) In contrast, others suggest that formal contracts are complementary to close relationships (e g , Poppo and Zenger 2002)

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[1] We refer to these two strategic choices as detailed contract drafting and close partner selection

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Third, the extant literature has studied these choices in isolation of the network in which the exchange is embedded (for a recent exception with respect to close partner selection, see Wuyts et al 2004) This neglect is notable because "individual relationships are embedded in the context of other relationships that could have governance implications" (Heide 1994, p 81)

Finally, on the antecedent side, researchers primarily associate these two strategic choices with transaction attributes (Williamson 1991) They rely on transaction cost theory, which is a theory of the firm, it deals with the best generic governance decisions for organizing a particular transaction However, this does not fully explain how any particular firm chooses to organize that particular activity (Madhok 2002) Because it has been shown that organizational culture influences the terms and types of trade (Kreps 1990) and because culture is often cited as a cause for the failure of interorganizational relationships (Segil 1998), we study how firms with different organizational cultures choose different ways to protect against opportunism Although the impact of organizational culture has been acknowledged in marketing (e g , Deshpandé, Farley, and Webster 1993), it has largely been overlooked in the governance literature

We aim to address the preceding gaps, with a focus on the formation phase of buyer–supplier relationships, by (1) studying the impact of a firm's organizational culture on detailed contract drafting and close partner selection, (2) examining the effects of detailed contract drafting and close partner selection on partner opportunism, (3) testing whether detailed contract drafting and close partner selection operate as complements or substitutes, and (4) exploring the moderating mechanism of network embeddedness on the effectiveness of detailed contract drafting and close partner selection in reducing opportunism From a managerial standpoint, we provide empirical evidence of the (in)effectiveness of detailed contract drafting and close partner selection as hedges against opportunism The insight into how organizational culture steers managers toward one of these two strategic choices can help them make better choices that reduce failure

Conceptual Framework and Hypotheses

This research takes the perspective of a buyer firm in a vertical exchange relationship, which reports on its own position and choices and on the subsequent opportunistic behavior of its exchange partner When erecting hybrid governance structures, buyer firms try to solve potential governance problems proactively by drafting detailed contracts and/or selecting a partner with which they have a history of close collaboration (Ryall and Sampson 2003)

Detailed Contract Drafting and Close Partner Selection

Detailed contract drafting A first important strategic choice that buyers must make at the outset of a new purchase agreement pertains to the extent of detailed contract drafting Explicit contracts detail roles and responsibilities to be performed, determine outcomes to be delivered, and specify adaptive processes for resolving unforeseeable outcomes (Lusch and Brown 1996, Poppo and Zenger 2002) Sufficiently elaborate and carefully constructed contracts serve as a form of quasi-integration and establish a vertical interfirm authority relation that can subsequently guide behavior (Stinchcombe 1985)

Close partner selection A second important strategic choice for buyers when selecting a supplier for a new purchase agreement is the closeness of prior interaction Although buyers may share close prior ties with some suppliers, they may share only loose or no prior ties with other suppliers Closeness refers to the intensity and valence of prior interaction (Marsden and Campbell 1984, Mathews et al 1998), and it varies from distant arm's-length delivery to intense cooperation that resembles real teamwork By selecting a partner with which a firm has a history of close collaboration, the focal party hopes to create a "shadow of the past," which promotes the emergence of relational governance based on relational norms (Macneil 1980) These norms, or "principles of right action" (Macneil 1980, p 38), are adhered to in view of continuation of the relationship, and they serve to regulate proper behavior (Stinchcombe 1985)

Impact of Organizational Culture

Organizational culture is defined as the values that senior managers in a firm share regarding appropriate business practices in the supply chain (cf Nooteboom, Berger, and Noorderhaven 1997) [2] Different perspectives exist as to the relationship between organizational culture and strategy (for a detailed overview, see Koen 2005) One approach suggests that the two are essentially synonymous because they are both deeply ingrained patterns of management behavior (e g , Greiner 1983) A second approach views organizational culture as an important driving force behind all movements in the organization Mintzberg (1979), among others, advocates this approach The first approach is less popular than the second because it "would be true only for emergent strategies based on the default of management" (Hofstede 2001, p 420) In addition, the second approach has the benefit of sensitizing managers to the ways that organizational culture affects their decision making, which may help them make better choices We take the second approach and study the effect of organizational culture on two strategic decisions detailed contract drafting and close partner selection

We investigate three elements of organizational culture, conceptualized as organizational values uncertainty avoidance, collectivism, and power distance These dimensions are firm-level equivalents of Hofstede's (2001) nation-level dimensions According to Hofstede (1980, p 5), the culture of a collectivity is, in general terms, characterized by values that reflect a "broad tendency to prefer certain states of affairs over others" In line with this characterization, which is not restricted to nations but pertains to any kind of social system, collectivism, uncertainty avoidance, and power distance have been applied to other social systems as well, including individual firms (for uncertainty avoidance, see, e g , Sitkin and Pablo 1992, for collectivism and power distance, see, e g , Bates et al 1995)

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[2] Organizational culture has typically been conceptualized as a molar concept that is indicative of the organization's goals and appropriate means to goal attainment However, the culture construct has recently been expanded to include a more specific focus to a particular referent, as in the culture with respect to service or to safety (Schneider 2000) We take the latter approach in studying the firm's cultural values with respect to appropriate practices in the supply chain

Uncertainty avoidance Firms vary in their tolerance of uncertainty and ambiguity We define a firm's uncertainty avoidance as the extent to which the firm feels threatened by and tries to avoid uncertain, ambiguous, or undefined situations in the supply chain (Hofstede 2001) Firms that are high in uncertainty avoidance need predictability and uniformity (i e , standardization, see Erramilli 1996) They have a strong preference for codification and the establishment of formal rules (Steensma et al 2000) Conversely, firms that are low in uncertainty avoidance tend to accept uncertainty without much discomfort, take risks easily, and show greater tolerance of various opinions and behaviors Accordingly, they do not welcome standardization but rather value flexibility (Erramilli 1996, Hofstede 2001)

Detailed contracts that use standard contractual terms and that are legally enforceable can mitigate the anxiety of decision makers and bring clarity (Pan and Tse 2000, Steensma et al 2000) Because high-uncertainty-avoidance firms value formal rules and explicit guidelines over flexibility, they are likely to write more detailed contracts In contrast, low-uncertainty-avoidance firms are less prone to draft detailed contracts because they experience them as limiting the opportunities that may be brought to them by new and uncertain situations Thus

H_1 Uncertainty avoidance increases detailed contract drafting

The collaborative character of a close tie can alleviate uncertainty because it provides the flexibility to cope with inevitable environmental uncertainties that arise in an exchange (Poppo and Zenger 2002) Moreover, the intense communication that characterizes a close tie reduces behavioral uncertainty (Noordewier, John, and Nevin 1990) Because high-uncertainty-avoidance firms try to make events more predictable and typically consider what is different as dangerous (Hofstede 2001), such firms may be more prone to select a close partner Thus

H_2 Uncertainty avoidance increases close partner selection

Individualism–collectivism Individualism–collectivism refers to the extent to which a firm believes that it should focus on personal goals rather than collective goals when working with partners Whereas collectivists value the social fabric and group norms, individualists desire independence from other firms (Steensma et al 2000)

Collectivist firms do not require detailed contracts for governing exchange Because the norm is for group goals to take priority over personal goals, there is little need for contracts as a mechanism for conflict resolution (Wagner 1995) Other scholars argue more strongly that collectivists not only do not need contracts but also do not like contracts, they prefer short, imprecise contracts that commit parties to work together to resolve difficulties as they emerge (Sako and Helper 1998) For collectivists, formal contractual arrangements may indicate conflict between partners, which is inconsistent with their prioritizing of group norms (Steensma et al 2000) In summary, collectivist firms are likely to deemphasize contractual detail In contrast, because the norm in individualist firms is for personal goals to take priority over group goals (Wagner 1995), individualist firms are more likely to expect that their potential partners also have their own objectives and goals in the forefront Therefore, detailed contracts, which ensure that the partner's individual goals and aspirations do not interfere with the firm's own individual goals, have a greater appeal to more individualist firms (Steensma et al 2000) Following a rationale similar to ours, albeit in a different context, Bates and colleagues (1995) show that compared with collectivists, individualists believe in more detailed formal systems that explicitly define, control, and evaluate individual contributions Thus

H_3 Collectivism decreases detailed contract drafting

Scholars have found that collectivists are more cooperative in general, they enjoy working together, care about their business partners, and perform better in close cooperation with others (Hofstede 2001) Wagner (1995, p 168) asserts that actors with more collectivist orientations are more likely to form cooperative partnerships, even "within a single societal culture" In contrast, individualist firms value the independence and flexibility provided by an arm's-length relationship and may be reluctant to forgo control by pursuing relational governance (Steensma et al 2000) Thus

H_4 Collectivism increases close partner selection

Power distance Power distance refers to the "practice of inequalities in the distribution of power and authority" (Hofstede 1980, p 72) It describes the extent to which the firm believes that more powerful firms should have more to say than their less powerful channel partners Whereas an organizational culture that is low in power distance revolves around equality and consultative decision making, an organizational culture that is high in power distance revolves around limits of authority and explicit definition of tasks (Bates et al 1995, Hofstede 1980)

High-power-distance firms experience a greater need for explicit definition of tasks (Bates et al 1995) and tight control over their and their partners' behavior (Shane 1994) They believe in giving and receiving detailed instructions with little autonomy to interpret them Therefore, such firms are more comfortable with formalized decision making and roles and responsibilities that are fixed by some clear structure and set of rules (Hofstede 2001)[3] Contracts promote formalized decision making because they provide a hierarchical structure with legitimate authority and assign roles and responsibilities to the different parties involved (Heide 1994, Stinchcombe 1985) Thus

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[3] In the context of intraorganizational relationships, Hofstede (2001, p 82) argues that power distance is related to "the value systems of both bosses [i e , the more powerful partner] *and* subordinates [i e , the less powerful partner] and not to the value of

H_5 Power distance increases detailed contract drafting

High-power-distance firms do not view their channel partners as equals, and therefore they dislike relationships that are characterized by consultative decision making and adherence to informal norms (Hofstede 1980) Selecting a close partner may promote the development of relational norms (Heide 1994), including restraint in the use of power (Macneil 1980), and thus it is less attractive to high-power-distance firms In contrast, a firm that is low in power distance views its channel partner as relatively equal and engages in informal communication between entities at different hierarchical levels (Hofstede 1980) Consistent with Hofstede's (1980) finding that organizational controls in non–power distant cultures are often based on shared values or a sense of duty or obligation to others, we hypothesize that low-power-distance firms are more likely to select partners with which they have close prior ties Thus

H_6 Power distance decreases close partner selection

Effect of Detailed Contract Drafting and Close Partner Selection on Opportunism

In this section, we discuss how detailed contract drafting and close partner selection may curb the partner's opportunistic behavior Opportunism is defined as self-interest seeking with guile, it includes such behaviors as lying and cheating as well as more subtle forms of deceit, such as not fully disclosing information or violating the spirit of an agreement (Rindfleisch and Heide 1997)

Effect of detailed contract drafting on partner opportunism The effectiveness of detailed contracts in hedging against opportunistic behavior is not without controversy Masten (1996) contrasts two lines of thought On the one hand, writing down binding contract terms has the obvious benefit that the court can be used to force transactors to perform to the literal terms of the contract (Klein 1996) Thus, through clearly articulated clauses, contracts narrow the domain around which parties can be opportunistic For example, precise definition of each party's role decreases the likelihood that the partner will break promises, such as selling in an unauthorized territory, and precise statement of how each party is to perform decreases the likelihood that the partner will hide important performance-related information, such as information about capacity constraints On the other hand, failing to specify all elements of the exchange contractually increases incentives for short-term cheating

Alternatively, detailed contracts are difficult and costly to write, and legal redress is expensive In addition to the extra "ink costs" of writing down responses to additional contingencies, complete contractual specification entails wasteful search and negotiation costs associated with discovering and negotiating prespecified contractual responses to all potential contingencies (Klein 1996) Moreover, writing detailed contracts may signal distrust by constraining partners in their behavior (Jap and Ganesan 2000) In turn, this may encourage opportunism in situations that are left unspecified within these contracts (Ghoshal and Moran 1996) Thus, it is possible to postulate both positive and negative effects of detailed contracts on opportunism Nonetheless, the pervasive logic in the governance literature is that drafting detailed contracts reduces opportunism (e g , Heide 1994, Joskow 1988) Thus

H_7 Detailed contract drafting reduces opportunism

Effect of close partner selection on partner opportunism A large and rapidly expanding body of literature has demonstrated the importance of close buyer–supplier relationships to facilitate cooperation and hedge against opportunism (e g , Brown, Dev, and Lee 2000) As relationships grow closer, partners consider the relationship ongoing and beneficial and therefore are inclined to refrain from behaviors that might jeopardize it (Heide 1994) Consistent with this argument, researchers have typically hypothesized a negative effect of relational governance on opportunism (e g , Achrol and Gundlach 1999, Brown, Dev, and Lee 2000)

In contrast, several researchers from various disciplines have recently drawn attention to the dark side of close relationships, arguing that relationships that are too close may actually become harmful Grayson and Ambler (1999, p 139) observe that "the sustainable competitive advantage enjoyed by long-term relationships carries the seeds of its own destruction" Jeffries and Reed (2000, p 873) note that "too much trust is as bad as too little" Wicks, Berman, and Jones (1999, p 99) argue that researchers need to focus on the notion of optimal trust, or the "golden mean" between excess (overinvestment in trust) and deficiency (underinvestment in trust) Some indirect evidence for these ideas has been provided by Moorman, Zaltman, and Deshpandé (1992) and Grayson and Ambler (1999), who find that long-term relationships dampen the positive influence of trust In line with these researchers and drawing on the self-enforcement literature, we argue that the relationship between close partner selection and opportunism is unlikely to be as simple as the previously proposed linear model, rather, it is a U shape According to the self-enforcement literature, opportunism is inhibited if the expected long-term gains of maintaining the relationship outweigh the short-term gains of cheating (Nagin et al 2002, Telser 1980)

As closeness increases from low to moderately high, the expected long-term gains to maintaining the relationship are likely to increase accordingly Several studies have found that selecting a close partner promotes socialization practices that align the interests of the exchange partners *ex ante*, which renders costly *ex post* monitoring unnecessary (Dyer and Singh 1998, Nooteboom, Berger, and Noorderhaven 1997) Socialization practices not only reduce costs but also lead to a wealth of benefits, including opportunities

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the bosses only, even though they are the more powerful partners" In line with Hofstede, we do not expect the effect of power distance to differ depending on the locus of power in the buyer–supplier relationship to develop organizational capabilities that are vital for the realization of firm objectives (Wicks, Berman, and Jones 1999) These increased expectations for long-term benefits reduce the attractiveness of short-term cheating In summary, as closeness increases from low to moderately high, the self-enforcing mechanism is strengthened, and therefore opportunism is less likely to occur

Although long-term benefits accrue to close partner selection, beyond a certain level of relational closeness, these benefits may fade An increase in closeness from moderately high to very high may come at the expense of economic efficiency Prior literature has offered multiple reasons for this effect, such as firms' decreased motivation to innovate (Baiman and Rajan 2002), their decreased motivation to find optimal solutions to problems of adaptation (Jeffries and Reed 2000), and their tendency to lock themselves into one particular field of knowledge at the expense of external opportunities (Poppo and Zenger 1998) Thus, as a tie becomes excessively strong, it becomes increasingly salient that change could deliver performance gains, and firms may become willing to "destroy established taken-for-granted rules if they perceive such action to be profitable" (Beckert 1999, p 786)

Concurrently, with this decrease in long-term benefits comes the increased short-term benefit of cheating The observation that monitoring decreases as relationships grow closer poses a paradox at high levels of closeness Although close partner selection establishes norms and expectations about appropriate behavior, thus lowering the need for monitoring in the exchange, it also increases the temporal window for collecting cheating rents before being discovered and thus provides the partner with ample opportunity to steal from the firm with relative impunity (Dyer and Singh 1998, Wicks, Berman, and Jones 1999) Moreover, this opportunity for opportunistic exploitation goes hand in hand with increases in the payoff should the firm decide to behave opportunistically As Granovetter (1985, p 491) notes, "the more complete the trust, the greater the potential gain from malfeasance"[4] In short, as closeness increases from moderately high to very high, diminishing long-term benefits and increasing payoffs from opportunistic exploitation weaken the self-enforcing mechanism, thus increasing the extent to which firms shirk or cheat (Nagin et al 2002) Combining these arguments with those that support moderate closeness over low closeness, we suggest that there is a U-shaped relationship between close partner selection and opportunism Formally,

H_8 The effect of close partner selection on opportunism is U shaped

Detailed contract drafting in combination with close partner selection There are two competing views on the joint effect of detailed contract drafting and close partner selection on partner opportunism The complement view regards close partner selection as filling in the holes of contracts, and vice versa In contrast, the substitution view regards detailed contracts as redundant and even countereffective when a close partner is selected

According to the complement view, both contracts and close ties have limitations Regardless of how explicit a contract is, certain dimensions of the exchange may prove impossible to specify contractually "[C]ontracts are not indefinitely elastic" (Williamson 1991, p 273), and managers are constrained in their ability to account for all future potential contingencies contractually (Macneil 1980) In addition, the utility of close partner selection has been questioned Selecting a partner with which a firm shares a history of close collaboration creates a shadow of the past, which promotes the emergence of relational norms (Heide 1994) Relational norms tend to be broadly defined and are subject to various interpretations As such, they can be manipulated to the advantage of one party (Achrol and Gundlach 1999) Some authors have suggested that close partner selection helps overcome the adaptive limits of detailed contracts, and vice versa (e g , Bradach and Eccles 1989, Poppo and Zenger 2002) Selecting a close partner promotes the emergence of relational norms, which may safeguard against hazards that are poorly protected by the contract, whereas contracts complement relational closeness through the formal specification of unspoken assumptions that help establish a solid basis for the development of norms From this perspective, the combination of selecting a close partner and drafting a detailed contract may reduce partner opportunism more than either decision in isolation

However, others view detailed contract drafting and close partner selection as substitutes (e g , Dyer and Singh 1998, Uzzi 1997) If a firm selects a partner with which it has developed a close tie in the past, there is little need to draft detailed contracts, and vice versa A close tie is characterized by positive valence and collaboration, and thus it promotes goodwill trust Because goodwill trust reduces the need for specifying and monitoring contractual clauses, it makes contractual safeguards redundant (Dyer and Singh 1998) Moreover, because drafting detailed contracts and maintaining close ties both involve considerable costs in terms of time and resources, firms will concentrate on either one or the other but not on both Other scholars argue that drafting detailed contracts may undermine the development of relational norms and thereby encourage the opportunistic behavior they are designed to discourage Making contracts more detailed may be interpreted as a signal of distrust (Jap and Ganesan 2000, Macaulay 1963) Because distrust begets distrust (Bradach and Eccles 1989), the partners may end up in a vicious cycle of suspicion and retaliation (Nooteboom, Berger, and Noorderhaven 1997), and opportunism surrounding actions that cannot be specified in contracts may increase Similarly, social norms and trust conventions can undermine the effectiveness of explicit contracts because they can stand in the way of effective enforcement of contractual details (Antia and Frazier 2001)

In summary, there appear to be two different, but equally logical, arguments for the joint effect of detailed contract drafting and close partner selection on partner opportunism. Therefore, we advance competing hypotheses:

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[4] Close relationships are characterized by greater proprietary information exchange than arm's-length transactions, which in turn increases the potential for information misappropriation According to Baiman and Rajan (2002), the value to the information recipient of misappropriating sensitive information can exceed the entire value of the contract with the information provider

H_{9a}: Detailed contract drafting and close partner selection are complementary in hedging against partner opportunism.

H_{9b}: Detailed contract drafting and close partner selection are substitutes in hedging against partner opportunism.

Moderating role of network embeddedness. Network embeddedness is the extent to which the focal relationship is embedded in a network of mutual contacts (Uzzi 1997). It reflects how close a firm's relationships are with its partner's partners and thus accounts for firms' relationships not only with each other but also with the same third parties.

Network embeddedness may increase the effectiveness of detailed contract drafting and close partner selection in curtailing opportunism for two reasons. First, firms with close mutual ties develop group norms through the diffusion of common understandings across the network (Rowley, Behrens, and Krackhardt 2000). Group norms are standards against which the appropriateness of behavior can be evaluated, and they regulate behavior among group members. Attempts to violate group norms by acting out of line with the behavior specified by the norms will typically be met with sanctions within the group (Rowley, Behrens, and Krackhardt 2000). As such, group norms reduce a firm's incentive to ignore contractual and relational codes of conduct for opportunistic ends.

Second, the more closely a firm is connected with its partner's partners, the more constraints there are on the partner's behavior because of a reputational effect (Jones, Hesterly, and Borgatti 1997). In other words, a firm is less likely to be cheated on by its partner when they are tied to the same third parties because these mutual contacts are likely to become aware of the cheating partner's actions (Granovetter 1985). If a firm's exchange partner acts opportunistically, the firm that is cheated on can spread the word through the network of mutual contacts. This may damage the partner's reputation as a trustworthy exchange partner (Granovetter 1985). As a result, the transactor engaging in the opportunistic behavior will incur increased costs of conducting business in the future because potential trading partners will be less willing to rely on the transactor's promises and may demand more favorable contract terms (Klein 1996). In addition, the opportunistic exchange partner may lose future contracts (Houston and Johnson 2000). As such, network embeddedness may stimulate exchange partners to adhere to the rules of good conduct as explicitly outlined by contracts or implicitly implied by relational norms. Thus:

H_{10}: Network embeddedness enhances the effectiveness of (a) detailed contract drafting and (b) close partner selection in reducing partner opportunism.

Control Variables

In addition to the effect of organizational culture on detailed contract drafting and close partner selection decisions, prior research has recognized the influence of transaction cost variables (Heide 1994). Transaction-specific assets are assets that are tailored to a particular relationship and that cannot be redeployed easily. Their idiosyncratic nature leads to a safeguarding problem in the sense that market competition no longer serves as a restraint on opportunistic exploitation. Environmental uncertainty refers to the unpredictability of relevant contingencies surrounding an exchange. The primary consequence of environmental uncertainty is an adaptation problem (i.e., difficulties with adjusting agreements cause high transaction costs). The effect of behavioral uncertainty is a performance evaluation problem (i.e., the difficulty in ascertaining *ex post* whether contractual compliance has taken place). In contrast to markets, the authority relationships available through detailed contract drafting and the relational norms available through close partner selection are assumed to embody greater safeguarding, adaptation, and evaluation capabilities. Therefore, we expect that detailed contract drafting and close partner selection increase in response to transaction-specific assets, environmental uncertainty, and behavioral uncertainty. Finally, transaction frequency, or the extent to which transactions recur, provides an incentive for firms to write detailed contracts or select a close partner because the overhead cost of contract writing and relationship maintenance will be easier to recover for transactions that recur. By including the transaction cost variables in our model of detailed contract drafting and close partner selection, we can better identify the unique effects of organizational culture and rule out rival explanations for our results.

Method

Sample and Data Collection Procedure

We test our hypotheses in the context of purchase decisions made by manufacturers in two industries. We selected a random sample of 838 small to medium-sized firms (up to 500 employees) in the two-digit Standard Industrial Classification codes 35 (Industrial and Commercial Machinery and Computer Equipment) and 36 (Electronic and Other Electrical Equipment and Components) from the database Reach, which provides detailed information on more than 200,000 officially registered companies in the Netherlands. This context is particularly relevant for our research objectives because vertical integration is typically not feasible for smaller buyer firms in these industries because such an approach is costly. As an alternative to market governance, such firms typically rely on hybrid governance modes. Interviews with purchasing managers supported our expectation that our conceptual model is relevant to this setting.

Each firm was contacted by telephone to locate an appropriate key informant (typically the purchasing manager) and to verify the firm's industry and size. Subsequently, personalized letters were mailed to each informant, explaining the purpose of the study and announcing that we would call them within two weeks to schedule an appointment for administering a questionnaire. The questionnaire took between 30 and 45 minutes. In all, we conducted fully completed interviews with 206 purchasing managers, for a response rate of 25%. This response rate compares favorably with other response rates reported in studies in business markets. We eliminated 29 questionnaires for two reasons: (1) Respondents indicated low levels of knowledge of purchasing agreements and partner selection, and (2) respondents were unable to identify an appropriate purchasing agreement Thus, 177 questionnaires remained for further analysis, for a response rate of 21% The 177 buyer respondents averaged 9 years of experience in their area and had been with their companies for an average of 12 years We evaluated the quality of informants using two questions that assessed their level of involvement with the partner and knowledge of their firm's dealings with the partner The 177 responses were uniformly high, as suggested by mean ratings of 6 18 and 6 16, respectively, on seven-point scales

We directed informants to complete the questionnaire for their most recent purchasing agreement that met the following criteria It should be an important (as opposed to a routine) purchase with which they were personally involved Furthermore, it should not be a one-shot purchase Thus, we restricted our research setting to only those kinds of purchases for which selecting a close partner was a viable option, consistent with the understanding that "occasional" frequency is the minimum threshold for departure from market-based governance (Williamson 1985, p 79) We checked for potential nonresponse bias by comparing the final sample with a random sample of 100 nonrespondents with respect to company sales volume and number of employees Because we did not find any significant differences ($p >$ 10), nonresponse bias does not appear to be a concern

Measures

We developed multi-item measures based on construct definitions and research precedents We administered a draft of the questionnaire in face-to-face interviews with eight purchasing managers We made some minor wording changes based on their feedback The final measures appear in the Appendix

Detailed contract drafting The items for the detailed contract drafting construct describe the level of detail with which the original contract prescribes roles, responsibilities, expected performance, and how to handle unplanned events and conflicts We instructed respondents to reflect on the original contract as it was specified at the time the purchase agreement was closed The four items are based on those that Lusch and Brown (1996) use

Close partner selection Our measure of close partner selection taps the closeness of the tie at the beginning of the specified purchasing agreement Our four items are based on the work of Marsden and Campbell (1984) and Mathews and colleagues (1998)

Partner opportunism This scale describes the extent to which the partner pursues its self-interest with guile For example, partners sometimes provide wrong or incomplete information, break promises, or exaggerate their needs to get what they desire The four items are based on the work of Gundlach, Achrol, and Mentzer (1995) and Dahlstrom and Nygaard (1999)

Network embeddedness Network embeddedness reflects how close a firm's relations are with its partner's partners (Uzzi 1997) We constructed a new four-item scale based on the conceptual definition of network embeddedness and prestudy interviews

Organizational culture Using related work on organizational values as a guide (e g , Bates et al 1995, Sitkin and Pablo 1992), we developed three three-item scales to measure uncertainty avoidance, collectivism, and power distance The uncertainty avoidance items describe the extent to which firms try to avoid uncertain and ambiguous situations in the supply chain The collectivism items measure the firm's inherent belief in cooperation and the notion that firms in the supply chain are jointly responsible for successes and failures The power distance items reflect the firm's opinion that more powerful channel members should have more to say in their relationships than their less powerful partners

Transaction cost covariates The three items of transaction-specific assets are based on the work of Anderson and Weitz (1992) and reflect investments dedicated to the relationship that cannot be redeployed easily if the relationship were to terminate The three-item scale for environmental uncertainty is based on the work of John and Weitz (1988) and reflects the difficulty to predict volume requirements for the supplier's component The three-item scale for behavioral uncertainty is based on the work of Stump and Heide (1996) and measures the extent to which the buyer firm cannot accurately assess its supplier's performance by objective, readily available output measures The single-item frequency measure is based on the work of Bucklin and Sengupta (1993) and indicates how frequently buyers expected to interact with the supplier in a typical month

Other covariates To ensure that differences in the recency of the purchase agreements do not bias the results, we control for the time lapse (in months) between the time the purchase agreement was closed (i e , when detailed contract drafting and close partner selection decisions were made) and the time the questionnaire was administered

Results

Analysis Strategy

We estimated the equations in our model simultaneously using partial least squares (PLS), a structural equation modeling technique We chose PLS because it is distribution free, and the presence of interaction effects does not satisfy the requirements of multivariate normality required by maximum likelihood estimation In line with the work of Chin, Marcolin, and Newsted (2003), we represent latent interaction variables by creating all possible products from the two sets of indicators We standardized the indicators before multiplying them Because PLS makes no distributional assumptions, traditional parametric tests of significance are not appropriate Therefore, we used bootstrapping to ascertain the significance of the parameter estimates Although the measurement and structural parameters are estimated together, the results are interpreted in two stages first by an assessment of the measurement model and, second, by an assessment of the structural model (Hulland 1999)

Measurement Model

Using approaches that Fornell and Larcker (1981) developed for a PLS context, we assessed the adequacy of the measurement model through an examination of individual item reliabilities, convergent validity, and discriminant validity To assess individual item reliability, we inspected the loadings of the items on their corresponding constructs As Hulland (1999) recommends, we deleted items with factor loadings smaller than 70 For the remaining items, we checked convergent validity using Fornell and Larcker's (1981) internal consistency measure The internal consistency values for all constructs appear in the Appendix and exceed the 70 guideline that Nunnally (1978) recommends

We assessed discriminant validity in two ways First, Fornell and Larcker (1981) suggest comparing the square root of the average variance extracted (i e , the diagonals in Table 1) with the correlations among constructs (i e , the off-diagonal elements in Table 1) An examination of Table 1 reveals that the diagonal elements of this matrix are significantly greater than the off-diagonal elements, indicating that each construct shares more variance with its measures than with other constructs Second, we checked and found no statistically significant item cross-loadings Collectively, these results support the discriminant validity of all constructs

Impact of Organizational Culture

Table 2, Part A, presents the results for the antecedents of detailed contract drafting and close partner selection All organizational values significantly influence the degree of detail of the drafted contract The positive effects of uncertainty avoidance (β = 29, $p <$ 01) and power distance (β = 15, $p <$ 05) support H_1 and H_5 Although the effect of collectivism is also significant (β = 15, $p <$ 05), its sign is not consistent with H_3 None of the control variables is significant

We find mixed support for the impact of the organizational values on close partner selection Collectivist firms are more likely to select a close partner, as we predict in H_4 (β = 24, $p <$ 01) We do not find support for the effects of uncertainty avoidance (H_2) and power distance (H_6) on close partner selection ($p >$ 10) For the transaction cost covariates, we find positive effects for behavioral uncertainty (β = 24, $p <$ 01) and transaction frequency (β = 21, $p <$ 01)[5]

The variance explained increases significantly by augmenting the transaction dimensions with organizational culture For detailed contract drafting, variance explained increases from 04 to 21 (pseudo-$F_{(3,\,170)}$ = 9 29, $p <$ 01) (Mathieson, Peacock, and Chin 2001) For close partner selection, variance explained increases from 17 to 23 (pseudo-$F_{(3,\,170)}$ = 4 22, $p <$ 01)

Effect of Detailed Contract Drafting and Close Partner Selection on Opportunism

As Table 2, Part B, indicates, we find no support for H_7, which involves the effect of contractual detail on opportunism ($p >$ 10) However, we find support for H_8, the close partner selection squared parameter is positive and significant (β = 18, $p <$ 05), indicating that the closeness with the selected partner has a U-shaped effect on opportunism (see Figure 1) Thus, we find evidence for the dark side of close partner selection We find a positive and significant interaction effect between detailed contract drafting and close partner selection (β = 26, $p <$ 01), in support of H_{9b} (i e , the substitute relationship) but not H_{9a} (i e , the complement relationship), high levels of both detailed contract drafting and close partner selection enhance opportunism We find mixed support for the moderating role of network embeddedness We find support for H_{10a} that network embeddedness enhances the effectiveness of detailed contract drafting in reducing opportunism (β = – 26, $p <$ 05), but we do not find support for H_{10b} that network embeddedness enhances the effectiveness of close partner selection ($p >$ 10)[6] Collectively, the interaction effects account for a significant increase in R^2 from 09 to 19 (pseudo-$F_{(3,\,169)}$ = 6 67, $p <$ 01) The time-lapse control variable is not significant ($p >$ 10)[7]

To understand the exact nature of the significant interaction between detailed contract drafting and close partner selection, we calculated the regression coefficient associated with detailed contract drafting using values of close partner selection one standard deviation below and above the mean, which represents low and high levels, respectively, of a history of relational closeness with the selected

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[5] Transaction cost researchers are divided between those who posit a main effect of environmental uncertainty and those who posit that environmental uncertainty is problematic only in the presence of specific assets We also tested for an interaction effect between environmental uncertainty and transaction-specific investments This interaction effect was not significant for detailed contract drafting or for close partner selection ($p >$ 10)

[6] We also included interaction effects between detailed contract drafting and close partner selection squared and between network embeddedness and close partner selection squared Neither of these higher-order interaction effects were significant ($p >$ 10) For reasons of parsimony, we dropped them from the model

[7] We also included the transaction cost covariates in the opportunism equation The increase in R^2 from 19 to 21 due to the transaction cost covariates was not significant (pseudo-$F_{(4,\,165)}$ = 1 19, $p >$ 10) Thus, the transaction dimensions affect partner opportunism only through their effect on detailed contract drafting and close partner selection We also created interaction effects between the time-lapse variable and all of our explanatory variables to explore whether any of our effects would change depending on the time elapsed between the starting date of the agreement and the date on which the questionnaire was administered None of these interaction effects was significant ($p >$ 10) To further ensure that differences in the recency of the purchasing agreements did not bias our results, we performed a Tukey outlier analysis in which we removed the 10% most extreme observations from our sample (i e , the lower 5% and the upper 5%) The results remained substantively the same We repeated this analysis for the 20% most extreme observations (i e , the lower 10% and the upper 10%) Again, our results did not change substantively

TABLE 1
Means, Standard Deviations, and Correlations

	Correlation Matrix													
Measure	**DCD**	**CPS**	**OPP**	**NET**	**UA**	**COL**	**PD**	**DCD × CPS**	**DCD × NET**	**CPS × NET**	**TSI**	**ENV**	**BEH**	**FRQ**
Detailed contract drafting (DCD)	78													
Close partner selection (CPS)	09	91												
Partner opportunism (OPP)	05	14	72											
Network embeddedness (NET)	10	18	05	86										
Uncertainty avoidance (UA)	37	06	02	22	88									
Collectivism (COL)	31	28	− 11	21	45	79								
Power distance (PD)	24	18	03	00	21	21	75							
DCD × CPS	01	08	23	01	11	− 01	04	N A						
DCD × NET	10	01	− 13	25	13	17	08	12	N A					
CPS × NET	01	06	08	− 05	10	02	10	09	01	N A				
Transaction-specific investments (TSI)	10	24	12	07	05	09	22	16	− 03	01	85			
Environmental uncertainty (ENV)	− 04	− 04	08	07	10	− 02	− 15	04	− 12	00	07	80		
Behavioral uncertainty (BEH)	− 07	22	17	− 10	− 02	02	07	11	− 14	03	40	24	74	
Frequency (FRQ)	05	28	− 04	09	− 03	12	14	00	− 03	10	28	00	05	1 00
Mean	4 49	3 64	1 99	3 39	5 07	4 91	3 81	16 62	15 47	12 95	2 20	3 85	2 70	7 63
Standard deviation	1 38	2 01	95	1 63	1 34	1 25	1 28	11 34	9 96	10 35	1 32	1 67	1 17	8 37

Notes Diagonal elements are the square roots of average variance extracted N A = not applicable

TABLE 2
PLS Results

A: Drivers of Detailed Contract Drafting and Close Partner Selection

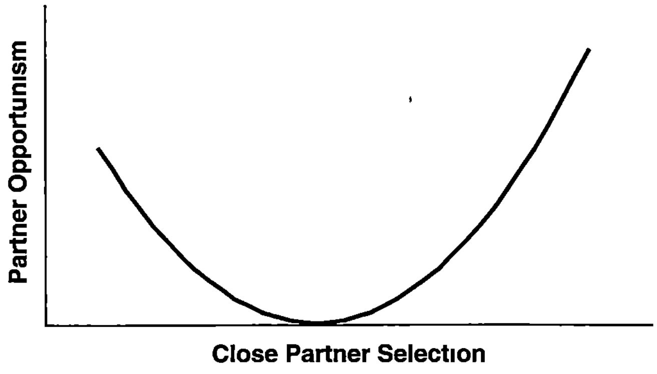
	Parameter Estimate (Standard Error)	
	Detailed Contract Drafting	**Close Partner Selection**
Organizational Culture		
Uncertainty avoidance	29 (08)**	– 02 (07)
Collectivism	15 (08)*	24 (07)**
Power distance	15 (07)*	08 (07)
Control Variables		
Transaction-specific investments	10 (07)	09 (08)
Environmental uncertainty	– 01 (09)	– 10 (08)
Behavioral uncertainty	– 15 (09)	24 (08)**
Frequency	– 03 (07)	21 (07)**
R^2	21	23

B: Effect of Detailed Contract Drafting and Close Partner Selection on Opportunism

	Parameter Estimate (Standard Error)
Detailed contract drafting	05 (08)
Close partner selection	08 (08)
Close partner selection squared	18 (09)*
Network embeddedness	11 (11)
Detailed contract drafting × close partner selection	26 (08)**
Detailed contract drafting × network embeddedness	– 26 (11)*
Close partner selection × network embeddedness	04 (13)
Time lapse	10 (08)
R^2	19

*$p <$ 05 (two-tailed test)
**$p <$ 01 (two-tailed test)

FIGURE 1
Effect of Close Partner Selection on Opportunism



partner (Jaccard, Turrisi, and Wan 1990) The analysis indicates that the null relationship between detailed contract drafting and partner opportunism at moderate levels of closeness becomes positive when closeness is high (β_H = 27), however, the null relationship becomes negative when closeness is low (β_L = – 18) This result suggests that efforts to draft detailed contracts to reduce opportunism are effective only when a nonclose partner is selected A similar analysis of the significant interaction between contractual detail and network embeddedness reveals that at high levels of network embeddedness, the relationship between contractual detail and opportunism is negative (β_H = – 17), and at low levels of network embeddedness, the relationship is positive (β_L = 27) This result suggests that efforts to draft detailed contracts to reduce opportunism are less likely to be effective without the benefit of network embeddedness

Discussion

Our study investigates the determinants and effects on partner opportunism of two strategic decisions that firms face when engaging in a new purchase transaction the decision whether to draft a detailed contract and the decision whether to select a partner with which the firm shares a history of close collaboration

Our results on the determinants of detailed contract drafting and close partner selection show that they have distinct organizational culture drivers What drives firms to select close partners? We find that collectivist firms are more prone to select partners with which they share prior close ties This finding is in line with collectivist firms performing better in close cooperation with their partners, as opposed to individualist firms feeling restricted by close ties Two countervailing forces cancelling each other out could explain the nonsignificant effect of uncertainty avoidance on close partner selection On the one hand, selecting a close partner may alleviate uncertainty by providing the flexibility to cope with inevitable uncertainties that arise in an exchange On the other hand, it may also create a different type of uncertainty—namely, relational uncertainty, or the firm's risk of being taken advantage of by its partner (Steensma et al 2000) Contrary to our expectations, close partner selection does not necessarily go hand in hand with low power distance (i e , firms that favor equal power distributions in the supply chain) A possible explanation is that in case of a power imbalance, the more powerful exchange partner often uses ideology as a cooperation-inducing force (Geyskens et al 1996)

What drives firms to draft detailed contracts? We contribute to the debate by showing that firms that are more collectivist, more uncertainty avoidant, and more tolerant of power distance in the supply chain show a greater propensity to write explicit contracts The positive effect of collectivism on contractual detail is surprising, and it led us to consider factors that might explain this result Ryall and Sampson's (2003) recent observation that firms frequently include contract terms that are not legally enforceable but that contribute to providing a more detailed plan for collaborative activities could be relevant Alternatively, collectivists may not consider the terms of the contracts a threat over the partner's head but rather a goal that the partners both want to achieve They may view contract negotiations as ways to learn about each other rather than ways to extract the maximum number of favorable terms at the negotiation table

Our results also provide insight into the effectiveness of detailed contract drafting and close partner selection as facilitators in reducing opportunism Although some scholars have lamented the shortcomings of contracts for governing exchange (e g , Macaulay 1963, Macneil 1980), there has been no decrease in the use of contracts or in the length or complexity of the rather formidable contracts that circulate in many industries Therefore, a key question is, When are contracts useful modes of governance? Drawing on network theory, we argue that the answer lies in the conjunction of contracts and network embeddedness Network embeddedness, in the form of close mutual ties, serves an indirect social control function, which is activated by group norms and reputational concerns Our findings indicate that detailed contracts become effective in hedging against opportunism when they are complemented with this indirect social control function In contrast, opportunism increases when detailed contracts are used in the absence of close mutual contacts A potential explanation is that writing something down to be enforced by the court creates rigidity Because contract terms are necessarily imperfect, transactors without close mutual ties face fewer reputational constraints to engage in opportunism by rigidly enforcing the imperfect contract terms, even if the literal terms are contrary to the intent of the contracting parties

Selecting a close partner shows a marked ability to control opportunism However, close relationships also have shortcomings, in that very high levels of closeness actually increase rather than attenuate opportunism This dark side of close relationships surfaces as relationships grow so close that beyond a certain point, the perceived benefits of behaving opportunistically exceed the perceived benefits of sustaining the relationship To the best of our knowledge, our significant U-shaped effect provides the most direct evidence of the dark side of close relationships

Contrary to expectations, however, we do not find an interaction effect between close partner selection and network embeddedness This implies that there is no synergy between the two Direct social control through dyadic norms does not require additional indirect social control through group norms that emerge at high levels of network embeddedness

Notably, we find that detailed contract drafting and close partner selection act at cross-purposes, and their combination increases opportunism Contracts set parameters on what the partner can legitimately do As such, detailed contracts may signal distrust, which conflicts with the trust conventions that typify close relationships between a firm and its partner, thus encouraging rather than discouraging opportunistic behavior Similarly, the direct social control function of relational closeness stands in the way of firms strictly enforcing the terms of the contract In other words, selecting a close partner and drafting a detailed contract are not compatible This positive interaction effect also indicates that contracts gain effectiveness in terms of reducing opportunism at low levels of closeness, which further highlights the complexity of the relationship between detailed contract drafting and opportunism

Considering our findings for the interaction effects of detailed contract drafting with network embeddedness and with close partner selection in combination, we arrive at an interesting conclusion Contracts are not compatible with direct social control and dyadic norms resulting from close partner selection, but they are compatible with indirect social control and group norms resulting from network embeddedness These findings suggest an important difference between dyadic norms and group norms, the theoretical foundation of which dates back to Simmel's ([1908] 1950) seminal work Whereas dyadic norms are attributed entirely to the personal interaction with the individual exchange partner, group norms are attributed to a higher-level impersonal group structure As a result, contractual terms in combination with dyadic norms can result in a vicious circle of suspicion and retaliation (Nooteboom, Berger, and Noorderhaven 1997), but they are less likely to conflict with group norms Additional research into the difference between dyadic norms and group norms is required to corroborate these arguments

Implications for Practice

Our study highlights several practices that managers should consider when structuring hybrid governance modes to inhibit their partner firm's opportunistic behavior First, managers should choose between drafting detailed contracts and selecting a close partner The combination of both triggers rather than reduces partner opportunism Second, using detailed contracts as a hedge against opportunism is more effective when the focal relationship is embedded in a network of close mutual contacts When the focal relationship is not embedded in a network, close partner selection is the better option to subdue the partner's opportunistic inclinations However, managers should be wary of selecting relationships that have become too close or of allowing relationships to become too close Moderately close relationships are more effective in curbing the partner's opportunism than either arm's-length or very close relationships Finally, firms that are high in uncertainty avoidance and power distance should be careful of engaging in detailed contract drafting when this is not opportune, especially given the absence of a network

Limitations and Issues for Further Research

There are some limitations to consider, which highlight several worthwhile avenues for further research First, our model is only a partial model and does not purport to represent all the possible antecedents of decisions to draft detailed contracts and to select close partners We have contributed to governance theory by incorporating organizational culture This is important because it moves the theory beyond a transaction focus Further research could also account for differences in firm resources, such as superior technology and brand equity, that might have governance implications (Ghosh and John 1999) Second, our sample was limited to small and medium-sized buyers from two related industries in the Netherlands Further research should examine the generalizability of our results in different channel contexts Third, we studied only differences among firms in their organizational values, not among different countries A study of cultural interactions between two groups of entities (e g , firms and countries) may provide insight into how firms make governance decisions in a variety of cultural environments that may be similar or dissimilar to their cultural values Fourth, in studying the role of network embeddedness, we considered only the effect of close mutual contacts (i e , positive valence ties), however, negative valence ties could also affect the effectiveness of detailed contract drafting and close partner selection Finally, our study uses cross-sectional data, which exclude tests for the effectiveness of detailed contract drafting and close partner selection over time Perhaps the complement–substitute relationship is time dependent and changes over the course of the relationship life cycle Contracts may help ensure that the early, more vulnerable stages of exchange are successful (failure to contractually specify elements of the exchange that are easily specified merely heightens incentives for short-term cheating and lowers expectations of cooperation), but their importance may decline with time as social norms emerge in a relationship (Jap and Ganesan 2000) Further research could study the theoretical mechanisms that drive a complement–substitute relationship between detailed contract drafting and close partner selection

MEASUREMENT APPENDIX

Construct	Items	Internal Consistency
Detailed contract drafting	•In dealing with this supplier, our contract precisely defines the role of each partner •In dealing with this supplier, our contract precisely defines the responsibilities of each partner •In dealing with this supplier, our contract precisely states how each party is to perform •In dealing with this supplier, our contract precisely states what will happen in the case of events occurring that were not planned	86
Close partner selection	Before our firm selected this supplier for this purchasing agreement, •Our firm worked very intensively with this supplier •Our firm had a very close relationship with this supplier •Our firm's relationship with this supplier was like an arm's-length delivery of the components [a] •Our firm and this supplier had a very collaborative relationship, like a real team	94
Partner opportunism	•This supplier often exaggerates its needs to get what it desires •This supplier often alters the facts to get what it wants •This supplier often promises to do things, even though it actually had no intention of following through •We have reason to believe that this supplier hides important information from us	81
Network embeddedness	Before our firm selected this supplier for this purchasing agreement, •Our firm worked very intensively with one or more partners of this supplier •Our firm had a very close relationship with one or more partners of this supplier •Our firm's relationship with the partners of this supplier was arm's length, purely restricted to executing transactions [a] •Our firm had a very collaborative relationship with one or more partners of this supplier, like a real team	89

MEASUREMENT APPENDIX

Construct	Items	Internal Consistency
Uncertainty avoidance	•Uncertain situations in our supply chain are a threat to our firm •Our firm goes to great length to avoid uncertain situations in our supply chain [a] •Our firm goes to great length to avoid unclear and ambiguous situations in our supply chain	87
Individualism–collectivism	•Firms and their suppliers are always jointly responsible for the successes and failures of their working relationships •Our firm considers it as the most normal thing that firms in the supply chain try to cooperate as much as possible •Close cooperation with other firms in our supply chain is to be preferred over working independently	84
Power distance	•Firms in the supply chain that are in a powerful position should have more to say in their relationships than their partners •Firms in the supply chain that are not in a powerful position should generally follow the will of their partners •In a supply chain, it is logical that firms in powerful positions have the last word	79
Transaction-specific investments	•If we ended our relationship with this supplier, we would need to invest a lot of time and effort redeploying those of our people who are presently serving this supplier •If we ended our relationship with this supplier, we would be wasting a lot of knowledge that is tailored to this relationship •If we switched suppliers, the production system that incorporates this component would need to be adapted substantially before we could start working with another supplier	89
Environmental uncertainty	•Volume requirements for this component are subject to unpredictable fluctuations •Our forecasts of this component's volume requirements are quite inaccurate •It is difficult to reliably estimate the required volumes for the supplier's component	80
Behavioral uncertainty	•Evaluating this supplier's performance is a highly subjective process •This supplier is performing so many different tasks that it is difficult to ascertain whether a good job is being done •It is difficult to determine whether agreed-upon quality standards and specifications are adhered to	77
Transaction frequency	•At the beginning of your relationship with this supplier, how frequently did your firm believe it would need to interact with the supplier firm in a typical month?	N A

[a] We dropped this item from further analysis

Notes We measured all items except for transaction frequency, which is a count variable, on seven-point scales, anchored by "strongly disagree" and "strongly agree" N A = not applicable

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Judith A. Garretson & Scot Burton

The Role of Spokescharacters as Advertisement and Package Cues in Integrated Marketing Communications

Marketers often use verbal claims to highlight brand benefits in marketing communication campaigns However, spokescharacters may also be incorporated into campaigns and are often featured both in advertisements and on product packages The authors use three studies to examine various integrated marketing communications (IMC) strategic combinations, including the effects related to the use of spokescharacters versus verbal attributes, advertisement–package coordination, character relevancy, and the presence of new, favorable brand information that may compete for cognitive resources on packages Based on conceptual rationales drawn from encoding specificity, network associations, and the elaboration likelihood model, the findings offer empirical evidence that pertains to the potential benefits of including spokescharacters in IMC campaigns Specifically, the use of spokescharacters results in more favorable brand attitudes, even when brand attribute recall is affected adversely by deviations from the primary message conveyed in the IMC campaigns The authors offer some implications of these and other findings for marketers attempting to affect consumer evaluations favorably with spokescharacters in IMC campaigns

Spokescharacters have been integrated into various historical and modern advertising campaigns Originally created in the late nineteenth century as brand identifiers (Callcott 1993, Dotz, Morton, and Lund 1996), these characters, which are sometimes referred to as character icons, have become a type of brand sign and can symbolically convey a brand attribute or benefit Examples of spokescharacters include the Pillsbury Doughboy, Chester the Cheetah, and the Snuggle Bear Hundreds of such characters exist today, and many more are being created for marketing purposes each year Practitioners and scholars alike recognize the potential benefits of these popular visual cues (Fournier 1998, Shimp 2003, Thompson 2000) Initial investigations have suggested that these unique icons appearing in advertisements can benefit brands beyond merely their identification of the product (Callcott 1993, Mizerski 1995, Phillips 1996), though research pertaining to such benefits remains limited

The Energizer Bunny case illustrates some supplemental benefits of placing characters on product packages and in advertisements For some time after its introduction, many consumers were unsure whether the bunny character shown in advertisements was associated with the Duracell or Energizer brand batteries (Lipman 1990) Energizer responded by including the character on its product packages to remind consumers which brand "kept going and going" The brand response in the Energizer Bunny example demonstrates a successful integrated marketing communication (IMC) effort, in which marketers convey more consistent messages across different points of consumer contact (Shimp 2003), such as advertisements, in-store promotions, and packaging Marketing practitioners believe that the use of consistent messages across multiple points of contact has important implications for brand equity and sales (Duncan and Everett 1993, Low 2000, McArthur and Griffin 1997)

In considering such implications, this research examines the strategic combinations of advertising cues, including spokescharacters and verbal attributes (i e , written product attribute claims), that IMC campaigns use that might yield both memory and attitudinal benefits As Low (2000) notes in his study of marketing managers, IMC represents an underresearched philosophy even though it has been embraced by many organizations Furthermore, although even cosmetic inconsistencies in the use of spokescharacters and verbal attributes can invite potential problems (Goodstein 1993), few studies empirically examine strategic message coordination across marketing communication tools In addition, further research regarding characters is necessary because despite their prolific use in IMC campaigns, their potential impact is relatively unexplored A common assumption is that spokescharacters convey relevant attributes about their respective products, which is true in some cases, for example, the Pillsbury Doughboy conveys freshness, and the Snuggle Bear suggests softness

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Arguably, however, other characters may appear further removed from their product categories. For example, Tony the Tiger appears to have little connection to the relevant attributes of cereal.

In this research, we address the benefits of featuring more versus less relevant spokescharacters, both in advertisements and on product packages. By also examining verbal attribute claims, which represent the status quo communication format for most marketers, we consider the potential incremental and conditional effects of using characters. In three separate studies, we examine how strategies used at more than one point of consumer contact can either enhance or undermine favorable spokescharacter campaign outcomes. Drawing on a variety of theories, we offer predictions and findings that address situations in which IMC coordination can generate superior brand attribute recall and more favorable brand attitudes (A_b) through the use of spokescharacters.

Experiment 1

Rationale and Hypotheses

Evidence suggests that both more and less relevant information can facilitate learning (Heckler and Childers 1992; Lee and Mason 1999). We define relevancy as the degree of fit between the spokescharacter and the advertised product (see, e.g., Miniard et al. 1991; Sengupta, Goodstein, and Boninger 1997) and the degree to which the character communicates brand-relevant information, such as an attribute of the product with which it is paired. According to some empirical findings, more relevant stimuli may promote learning and memory (Heckler and Childers 1992; Keller, Heckler, and Houston 1998; Lee and Mason 1999) because they are encoded and integrated with brand-related material more easily. Therefore, and in accordance with the associative network theory (Anderson 1983), stronger associations form in long-term memory. However, other work has found that less relevant information can also enhance learning and memory at times (MacInnis, Moorman, and Jaworski 1991). According to this view, the less relevant stimuli provide schema-inconsistent information that elicits curiosity and motivation to process the information, and this leads to stronger links among the encoded associations.

In response to these divergent views, the elaboration likelihood model (ELM) (Petty, Cacioppo, and Schumann 1983) may offer some explanations about more and less relevant stimuli and their role in memory. According to the ELM, the way consumers view and process advertisements may determine the degree to which particular cues receive elaboration and become encoded. In turn, it may also affect the degree to which particular package cues effectively provide access to encoded cues, such as brand claim information that was initially presented with the package cues. Consumers who are motivated to process the details that are pertinent to brand attributes (i.e., brand processors) will be more sensitive to the relevancy of brand information in advertisements than will those who are less motivated to do so (i.e., ad processors). That is, brand processors focus more on attribute-pertinent details and therefore elaborate and integrate the relevant brand information (MacInnis, Moorman, and Jaworski 1991). Consistent with the encoding specificity principle, which suggests that cues used during both encoding and retrieval enhance memory (Higham 2002; Thomson and Tulving 1970), we believe that the presentation of relevant cues on packages can prime brand associations (i.e., brand claims in advertisements) that ultimately influence consumer brand evaluations (Alba, Hutchinson, and Lynch 1991).

The contention that consumers who process brand information may be more sensitive to the relevancy of presented material does not suggest that ad processors' encoding and retrieval of brand claims will be totally unaffected by character relevancy. Although ad processors primarily focus on the peripheral cues rather than on specific brand information when browsing advertisements, they can attend to and process some brand information, but this processing is rather shallow (Goodstein 1993; Hastak and Olson 1989). Therefore, ad processors' retrieval of information with the less relevant character will have a less detrimental effect on brand outcomes.

In summary, given the tenets of the ELM and encoding specificity, we predict a three-way interaction among processing goals, relevancy, and package cues. For brand processors, more relevant spokescharacters will be associated with the various brand claims made by the advertisements, which will make such spokescharacters superior package cues that enhance consumers' access to the brand claims at the point of purchase. In contrast, the effects of relevancy will be less pronounced for ad processors. Moreover, verbal attribute cues that consist of short phrases about product attributes and appear written on product packages may aid brand processors in retrieving brand claims at the point of purchase, but their usefulness should not depend on character relevancy. In addition, as the framing literature (Grewal, Gotlieb, and Marmorstein 1994; Maheswaran and Meyers-Levy 1990) and the relevancy/congruency literature (Fiske 1982; Goodstein 1993) note, the valence of retrieved material (i.e., positive brand claims) may frame subsequent consumer evaluations. Therefore, we offer the following hypotheses for both memory and A_b:

> H_1: The effects of package cues are moderated by relevancy and processing goals. More specifically,
>
> (a) For brand processors, the use of more brand-relevant spokescharacters as package cues results in improved memory for brand claims and more favorable A_b than does the use of less brand-relevant spokescharacters. For ad processors, the effects of character relevancy on memory and A_b is less pronounced.
>
> (b) In contrast, with the use of a verbal attribute package cue, relevancy and processing goals have weaker effects on brand claim recognition and A_b.

Design and Overview

We tested H_1 using a 2 (relevancy: high versus low) × 2 (processing goals: brand versus advertisement) × 2 (package cue: spokescharacter versus verbal attribute) between-subjects design that we replicated within subjects for two product categories (cheese and laundry detergent). For the three-stage experiment, we randomly assigned participants to the experimental conditions In the first stage, we manipulated the participants' processing goals (brand versus advertisement) and character relevancy by exposing them to ad stimuli (three filler and two counterbalanced target advertisements) In the second stage, we provided a distraction task to clear participants' short-term memory Finally, in the third stage, we manipulated the package cue by showing participants a package mock-up for the advertised products (two counterbalanced target and one filler advertisement) and then asking them to respond with regard to the dependent measures, manipulation checks, covariates, demand characteristic checks, and demographic variables

Manipulations, Pretests, and Stimuli

Relevancy We followed procedures and used measures similar to those used in previous research to manipulate the relevancy of the spokescharacters for advertised products (e g , Miniard et al 1991, Sengupta, Goodstein, and Boninger 1997) In the initial pretest (n = 54), we attempted to identify (1) two spokescharacters that evoked similar attitudes and (2) a nondurable product category relevant to each spokescharacter According to the results, the relevant conditions included a mouse with muscles matched with cheese and a sheep with thick wool matched with laundry detergent For the less relevant condition, the characters and categories were reversed (i e , the mouse paired with laundry detergent and the sheep paired with cheese) In the second pretest (n = 68), we assessed the relevancy manipulations for each product category Measures of the spokescharacter's relevancy to an advertised product included the following "The idea of the [character] pictured with [product category] represents a very good fit," and "I think that the picture of the [character] is relevant for [product category] " The coefficient alpha was 96 for both products, and the differences in the check means were significant ($p <$ 001) and in the appropriate direction, in support of the relevancy manipulation

Processing goals To simulate consumer processing types, we manipulated the processing goal factor through the instructions the participants received immediately before their ad exposure (e g , Goodstein 1993) We instructed participants assigned to the ad-processing goal to browse through the advertisements and assess their various execution elements (e g , layout), we instructed those assigned to the brand-processing goal to examine the brand-related information contained in the advertisements To assess the processing goal manipulation, we used four seven-point items that measured the description of the participants' processing (e g , "As I viewed the advertisements, I was mainly thinking about the ," with the endpoints "layout and creative elements in the advertisement" versus "attributes and benefits of the brand" [α = 86]) The findings from the second pretest support the processing goal manipulation (F = 41 10, $p <$ 001) with means in the appropriate direction

Package cue To operationalize the package cue manipulation, we placed different types of cues in the lower right-hand corner of the product packages for the target brands For the spokescharacter condition, the manipulated area of the package included a smaller color reproduction of the same character we used in the advertisement in the first stage (either more or less relevant) In the verbal attribute condition, the manipulated area contained the verbal meaning that the character shown in the advertisement in the first stage was supposed to convey (i e , cheese "makes you strong", laundry detergent "makes clothes fluffy") Pretests indicated that the spokescharacters and verbal attributes did not differ in terms of meaning[1]

Target advertisement and mock package stimuli For each of the target brands, participants viewed a one-page color advertisement that contained a headline with a fictitious brand name and product category, both of which were bolded and centered at the top of the page[2] (For ad stimuli, refer to Appendixes A and B) A picture of the product, a spokescharacter (either more or less relevant), and a verbal cue appeared below the heading in the center portion of each advertisement In the lower portion of each page, there were two paragraphs, one on each side of the page, that explained a different brand claim Directly above each of these paragraphs, there was a bolded heading that was related in general to the claim The package stimuli were printed in color and contained a capitalized, bolded brand name (for an example, see Appendix C) The package markings were identical across all conditions, except for the package cue manipulation located in the bottom right-hand corner of each package Other than the described manipulations, all aspects of the advertisement and package stimuli were invariant

Dependent Measures

We gathered two brand claim recognition measures for each of the two target brands, which resulted in four total measures These seven-point scaled items, anchored by "definitely true" and "definitely not true," measured the degree of recognition that participants experienced for the particular attributes that were featured as the two main claims shown in the bottom portion of each target advertisement To measure A_b, we used four seven-point bipolar adjective scales (e g , positive/negative, good/bad) The coefficient alphas exceeded 95 for each of the product categories

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[1] We conducted an additional pretest to ensure that these meanings did not differ, in which we assigned 51 participants randomly to either a spokescharacter or a verbal attribute advertisement While participants were exposed to the advertisement, they responded on a seven-point, single-item ("The information that is featured with the picture of the product is communicating that [the product] will [claim]") measure, anchored by "strongly agree" and "strongly disagree" The pretest findings verify that both conditions are similar in terms of meaning For laundry detergent, both conditions similarly communicated that the product would "make clothes fluffy" (t = 68, $p >$ 30) For cheese, the mean values for the belief that the product would "make you strong" were similar for both conditions (t = 90, $p >$ 30)

[2] Similar to the procedure in previous work (Desai and Keller 2002, Lane 2000), we exposed participants to typical consumer product goods and recruited them on a volunteer basis from business courses There were 105 participants in Experiment 1, they ranged from 19 to 43 years of age In Experiment 2, 364 participants between 19 and 44 years of age completed the study Experiment 3 comprised 156 participants who were between 20 and 28 years of age

Results

Manipulation checks The manipulation check measures for relevancy (cheese α = 95, laundry detergent α = 94) and processing goals (coefficient α = 82) are identical to those we used in the second pretest In the relevancy manipulation, there are significant effects for the relevancy of the appropriate character for both the cheese (F = 69 19, $p <$ 001) and the laundry detergent (F = 35 53, $p <$ 001) There is also a significant effect of the processing goal manipulation (F = 27 84, $p <$ 001) The means for the processing goals and relevancy manipulations are all in the appropriate direction

Brand claim recognition In H_1, we predicted a three-way interaction among processing goals, relevancy, and package cue for brand claim recognition Because we were interested primarily in the overall effect of these factors on brand claim recognition, we performed an analysis of variance (ANOVA) on the mean brand claim recognition scores As we predicted in H_1 and show in Table 1, the three-way interaction is significant ($p <$ 01) The cell means appear in Table 2

We performed planned contrasts to assess the specific predictions in H_{1a} and H_{1b} about brand claim recognition As we predicted in H_{1a}, brand processors experience stronger recognition of brand claims when more (mean [M] = 5 50) rather than less (M = 4 08) relevant characters are used as cues on product packages (F(1, 97) = 11 31, $p <$ 01) In contrast and as we expected, for ad processors, the effects are less pronounced (F(1, 97) = 3 31, $p <$ 10) Consistent with H_{1b}, the planned contrasts for verbal attribute package cues do not differ across the character relevancy conditions for either brand (F(1, 97) = 16, $p >$ 10) or ad (F(1, 97) = 1 56, $p >$ 10) processors

Brand attitude In H_1, we also predicted that the effects of the package cue on A_b would be moderated by both relevancy and processing goals (i e , a three-way interaction), which we tested with a repeated-measures ANOVA for the two product categories As we show in Table 1 and consis-

TABLE 1

Experiment 1: Effects on Brand Claim Recognition and Brand Attitude

	Brand Claim Recognition			Brand Attitude		
Independent Variables	F Value	Degrees of Freedom	eta^2	F Value	Degrees of Freedom	eta^2
Processing goals (PG)	3 16†	(1, 97)	03	44	(1, 97)	01
Relevancy (R)	2 54	(1, 97)	03	4 58*	(1, 97)	05
Package cue (PC)	05	(1, 97)	00	69	(1, 97)	01
PG x R	4 53*	(1, 97)	05	78	(1, 97)	01
PG x PC	2 89†	(1, 97)	03	53	(1, 97)	01
R x PC	01	(1, 97)	00	9 00***	(1, 97)	09
PG x R x PC	8 94***	(1, 97)	08	5 27**	(1, 97)	05

†$p \leq$ 10
*$p \leq$ 05
**$p \leq$ 025
***$p \leq$ 01

TABLE 2

Experiment 1: Cell Means for Brand Claim Recognition and Brand Attitude

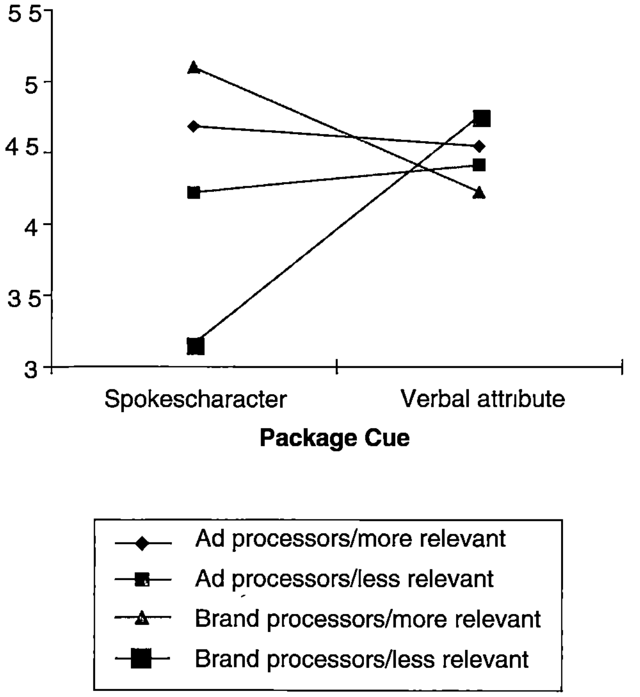
Independent Variables	Brand Claim Recognition	Brand Attitude
Spokescharacter Package Cue		
Brand Processing Goal		
More relevant spokescharacter in advertisement	5 50	5 09
Less relevant spokescharacter in advertisement	4 08	3 16
Ad Processing Goal		
More relevant spokescharacter in advertisement	5 15	4 68
Less relevant spokescharacter in advertisement	5 92	4 22
Verbal Attribute Package Cue		
Brand Processing Goal		
More relevant spokescharacter in advertisement	5 19	4 22
Less relevant spokescharacter in advertisement	5 02	4 75
Ad Processing Goal		
More relevant spokescharacter in advertisement	5 39	4 54
Less relevant spokescharacter in advertisement	4 85	4 41

tent with our predictions, there is a significant ($p < 025$) three-way interaction In Figure 1, Panel A, we depict the plotted means for the eight cells, and in Table 2, we provide the cell means

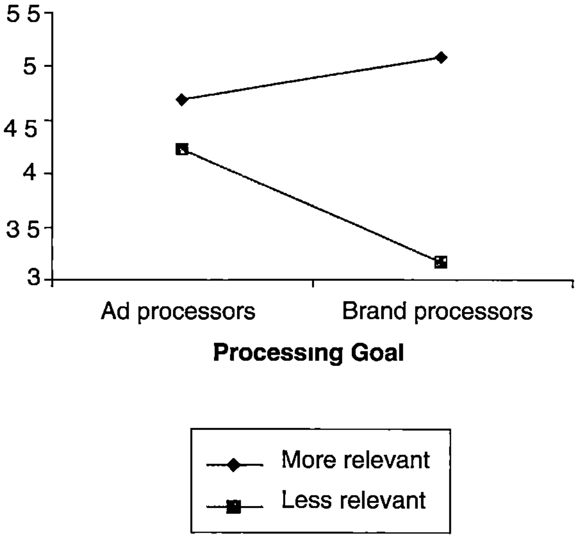
We also used planned contrasts to assess H_{1a} and H_{1b} with regard to their A_b predictions For brand processors, the relatively large differences that H_{1a} predicted are between the more (M = 5 09) and less (M = 3 16) relevant conditions when spokescharacters are used as cues on packages (F(1, 97) = 17 73, $p < 001$) As we expected for ad processors, A_b is not significantly different when cues are less relevant (M = 4 22) than when they are more relevant (M = 4 68, F(1, 97) = 99, $p > 10$) (Plotted means are in Figure 1, Panel B) Similar to the findings for the brand claim measure, planned contrasts that test H_{1b} for the verbal attribute package cue indicate no differences across the spokescharacter relevancy conditions for either brand (F(1, 97) = 1 24, $p > 10$) or ad (F(1, 97) = 08, $p > 10$) processors

FIGURE 1
Experiment 1: Effects of Processing Goal, Relevancy, and Package Cue on Brand Attitude

A: Overall Effects



B: Spokescharacter Package Cue



Discussion

Although both more and less relevant spokescharacters appear in various marketing communication campaigns, our results show that more relevant spokescharacters as package cues may help promote brand claim recognition among brand processors Spokescharacters appear to offer more than mere brand identification, which has served as the impetus for the creation of many historical characters For consumers who are initially motivated to process brand-related information, more relevant characters can improve both memory and brand evaluations, a finding that has not been identified specifically in prior retrieval cue work (e g , Keller 1991)

We predicted that ad processors' memory for brand claims and A_b would be less affected by the relevancy of the character Although marginal, ad processors' memory for brand claims improved with less relevant spokescharacters One possible explanation for this finding lies in the incongruency literature (Fiske 1982, Goodstein 1993, MacInnis, Moorman, and Jaworski 1991) For ad processors, the presence of the less relevant spokescharacter during encoding might enhance their motivation to process the brand claim information, but this may also cause them to generate and encode less favorable reactions Whereas less relevant character package cues might have primed brand claims, thus resulting in somewhat enhanced memory, they also may have primed unfavorable associations that negatively influenced participants' evaluations On average, the marginally superior memory that results from the less relevant cue does not render superior A_b

In general, this study suggests that more relevant spokescharacters, which consumers perceive as conveying a particular brand attribute, used at different points of IMC contact appear to offer brands the benefits of both increased memory strength and improved evaluations among consumers who actively process brand information This finding is consistent with Kardes's (1988) work, which indicates that inferred conclusions (i e , attributes conveyed by pictorial spokescharacters) in higher involvement conditions generate thoughts and attitudes that subsequently are relatively accessible When these cues are used both in advertisements and on product packages, they can offer brands benefits beyond attention-getting visuals

Finally, although some evidence suggests that recognition and recall measures produce similar patterns of results (Stapel 1998), other work indicates that recall represents a stronger association measure that may offer a more compelling test of our theory (Krishnan and Chakravarti 2003) Therefore, we conducted another study to provide additional evidence for the potential effects of relevant spokescharacters on memory using recall measures and to address the boundary conditions for these effects in coordinated media campaigns

Experiment 2

Rationale and Hypotheses

As Low (2000) notes, one area for potential improvement in IMC campaigns pertains to the coordination of campaigns by a single source That is, whereas creative advertising strategies typically are outsourced, other communication strategies often are devised in-house (McArthur and Griffin 1997) Using multiple agencies affords brands a strongly diversified set of creative ideas and specific competencies, but it also can result in inconsistencies, when one agency develops advertisements and another prepares in-store promotion and packaging, there may be deviations from a single-message IMC strategy

Such deviations, especially if they deviate from information that is initially presented to consumers, might result in less effective marketing communications Consider again the Energizer Bunny example Could the brand have gained similar benefits from placing the verbal claim of "keeps going and going" rather than the actual spokescharacter on its packaging? Although the difference between these messages may seem minor, theory suggests that presenting an attribute in one form (i e , visual) during encoding and then in a different form (i e , verbal) during retrieval can compromise potential memory-related benefits (Higham 2002, Thomson and Tulving 1970) Similarly, a new attribute that is not included in the information initially conveyed to consumers but that is presented on in-store packages represents another type of deviation Effective IMC campaigns require consistency at all points of contact (Reid 2003), and such simple variations can impede a campaign's success (Goodstein 1993) In Experiment 2, we further examine the effects of relevant spokescharacters and cosmetic variations in IMC to aid marketers as they consider integrated campaigns

Physical Match of Cues

The encoding specificity principle suggests that "matched" cues improve the accessibility of information from memory, therefore, to be most effective as package cues, relevant spokescharacters on packages should be presented first in advertisements as spokescharacters (pictures) rather than as verbal attributes (words), and any verbal attribute cues should follow the same pattern For example, Energizer could improve both consumer recall of brand information from advertisements and consumer evaluations by placing the Energizer Bunny character from a previous advertisement on packages rather than a verbal attribute with a comparable meaning (i e , "keeps going and going") As are spokescharacters, verbal attributes initially shown in advertisements are encoded in memory and can be linked to brand associations, which means that showing them again on product packages should prime these established associations and enhance consumer recall of other closely linked brand information

In addition, according to prior work on picture superiority (e g , McBride and Dosher 2002, Shepard 1967), there may be somewhat stronger effects from matching visual characters than from matching verbal attributes, and the use of both visual and verbal cues during encoding and retrieval offers advantages over a single format Given the dual-coding theory, which states that visuals are encoded more automatically into memory if presented in two modes (image and verbal codes, Goolkasian 2000, Paivio 1971), it is also plausible that a combined character and verbal attribute package cue presented after a spokescharacter advertisement (rather than after a verbal attribute advertisement) might produce more favorable outcomes because of the visual match

Competing Cues

The presence of new, competing information may also influence the effectiveness of the package cues, which would result in a response-set suppression effect (Postman and Underwood 1973) In this research, we use learning about a new brand attribute that differs from the attributes initially identified in a brand advertisement and that takes place during the consumer's opportunity to retrieve his or her previously learned information (e g , viewing a package at the point of purchase) as a form of competing information Consistent with prior work (Mann and Brenner 1996), information presented at the point of purchase may distract consumers from the task of recalling information they learned previously by competing for the cognitive resources they require for the retrieval process For example, Costley and Brucks (1992) find that cues originally presented in advertisements for target brands and then used in advertisements by competing brands unfavorably affected recall of the target brand's attributes

The presence of new, competing attribute information on package stimuli should moderate the effects of the ad and package cues on recall That is, the new information will distract consumers from using the package cue to prime the advertised brand attributes In addition, the new information might consume processing capacity, which diminishes the resources available for the retrieval task (Krishnan and Chakravarti 2003) This distracting effect may be contingent on the conditions that existed during encoding Again, the dual-coding theory (Goolkasian 2000, Paivio 1971) suggests the superiority of visual cues, furthermore, visuals can facilitate learning about semantic information and improve the meaning and organization of the text with which they are presented (Macklin 1996) Considering these enhanced effects of visuals, we expect that target visuals serve as anchors for "to-be-remembered" brand attributes, thereby making spokescharacters that are used both in advertisements and on product packages less susceptible to the distraction effects of competing information on packages In contrast, we believe that the verbal attributes used in both the ad and the package conditions will be more susceptible to unfavorable competing cue effects. When combined spokescharacter and verbal attribute cues appear both in advertisements and on packages, the effect of competing information should be less influential because of dual encoding and the benefits of the spokescharacters as visuals during encoding. This overall pattern of predictions suggests a three-way interaction among ad, package, and competing cues.

H_2: The ad cue and competing information moderate the effects of the package cue on brand attribute recall and A_b. Specifically, we expect the following:

(a) When competing information is absent, brand attribute recall and A_b are superior for spokescharacter package cues in the spokescharacter ad condition (ad–package cue match) than in the verbal attribute ad condition (ad–package cue mismatch).

(b) When competing information is absent, brand attribute recall and A_b are superior for verbal attribute package cues in the verbal attribute ad condition (ad–package cue match) than in the spokescharacter ad condition (ad–package cue mismatch).

(c) When competing information is absent, brand attribute recall and A_b are similar for the combined spokescharacter and verbal attribute package condition across all the ad cue conditions.

(d) The effects of the competing information on brand attribute recall and A_b is less pronounced for the spokescharacter ad–package cue condition (visual match) and the combined spokescharacter and verbal attribute ad–package cue condition (combined visual and verbal match) than for the verbal attribute ad–package cue condition (verbal match).

Overview, Design, and Manipulations

The experiment involved a 3 (ad cue: spokescharacter, verbal attribute, or combination) × 4 (package cue: spokescharacter, verbal attribute, combination, or no cue) × 2 (competing information: present versus absent) between-subjects mixed design, which we repeated within subjects across two product categories. We provide the specific design and conditions in Appendix D. As in Experiment 1, the procedures consisted of three stages.[3] We also used the same product categories, spokescharacters, and verbal attribute cues that we used in Experiment 1. Consistent with the first experiment, we manipulated the ad cue in the center portion of the advertisement and placed both the package cue and the competing information manipulations in the lower right-hand corner of the package stimuli. The competing information manipulation (when present) appeared to the right of the package cue manipulation. As in Experiment 1, we used filler ad and package stimuli and counterbalanced the target stimuli order.

Dependent Measures

Brand attribute recall. We calculated the brand attribute recall as the percentage of correct brand attributes recalled relative to the total number of brand attributes mentioned in the advertisement, which included the two target brand claims, information in the two paragraphs of the advertisement, and the attributes mentioned in the primary headline. Participants' responses were coded into the appropriate brand attribute category by two judges, whose interjudge reliability was high (>85%) and who resolved any differences.

Brand attitude measure and covariates. We used the same multi-item A_b measure that we used in Experiment 1, and we used the importance-of-brand-selection multi-item measure for each product category as a potential covariate. Coefficient alphas exceeded .95 for the multi-item dependent variable and covariate measures.[4]

Results

Manipulation checks. We assessed the cue manipulations used both in advertisements and on product packages and the competing information manipulation on the product packages. As we noted for one of the pretests in Experiment 1, although the format for the cue manipulations differed, the meaning conveyed in the advertisements was consistent across the three ad and package cue conditions.[5] In addition, we found that more than 99% of participants who were shown a competing attribute on the product package stimuli identified it as new information that was not in the advertisement. These findings demonstrate the successful manipulations of all three factors.

Brand attribute recall. In H_2, we proposed three-way interactions in which the effects of package cue on recall and A_b are moderated by both the ad cue and competing information. Table 3 contains the results of a 3 × 4 × 2 repeated-measures analysis of covariance for attribute recall and A_b. To assess the specific predictions, we performed planned contrasts.

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[3] We conducted a pretest to assess the degree to which the new, competing information on product packages was consistent with the primary message conveyed in the advertisement. Drawing from prior work (Heckler and Childers 1992; Peck and Childers 2003), we asked participants, "How consistent is the claim with the main advertisement message?" (anchored by "very inconsistent" and "very consistent"). We also asked them to rate their confidence in their answer to the question on a seven-point ("not confident" to "very confident"), single-item scale. The new information was perceived as low in consistency (M = 1.93), and participants were confident about that inconsistency (M = 5.81).

[4] We used brand selection importance as a covariate in the analyses for two reasons. First, the use of the measure is consistent with prior research involving multiple product categories (Keller 1991). Second, it eliminated a small but significant product main effect in Experiment 2 (i.e., there were no significant product interactions). We asked participants to respond to the question, "How important is it to you to buy just the right brand of [product category]?" We measured their responses on a seven-point scale, anchored by "very important/very unimportant," "very essential/very nonessential," and "means a lot to me/means nothing to me."

[5] In addition, we conducted two pretests to ensure that the package cue conditions did not differ in terms of the amount of information conveyed or their importance. The results from one pretest (n = 51) show that the amount of information conveyed about the main attribute across ad conditions did not differ, and the second pretest (n = 47) indicates that the primary ad attributes and competing package cue attributes were similar in terms of importance ($ps > .10$).

TABLE 3
Experiment 2: Effects on Brand Attribute Recall and Brand Attitude

Sources of Variation	Brand Attribute Recall F Value	Brand Attribute Recall Degrees of Freedom	Brand Attribute Recall eta²	Brand Attitude F Value	Brand Attitude Degrees of Freedom	Brand Attitude eta²
Independent Variables						
Ad cue (AC)	5 97**	(2, 339)	03	7 67***	(2, 339)	04
Package cue (PC)	8 43***	(3, 339)	07	3 94**	(3, 339)	03
Competing information (CI)	44	(1, 339)	00	32	(1, 339)	00
Two-Way Interactions						
AC × PC	1 68	(6, 339)	03	2 39*	(6, 339)	04
AC × CI	1 59	(2, 339)	01	62	(2, 339)	00
PC × CI	32	(3, 339)	00	1 05	(3, 339)	01
Three-Way Interaction						
AC × PC × CI	2 02†	(6, 339)	04	2 33*	(6, 339)	04

†$p \leq$ 10
*$p \leq$ 05
**$p \leq$ 01
***$p \leq$ 001

The results of the planned comparisons for the match hypotheses when no competing cue appears support our predictions For the spokescharacter package cue condition, brand attribute recall is greater for the spokescharacter advertisement (M = 25) than for the verbal attribute advertisement (M = 17, F(1, 339) = 3 77, p = 05) Recall is also marginally greater for the verbal attribute ad–package match, the verbal attribute package cue results in greater recall for the verbal attribute ad condition (M = 27) than for the spokescharacter ad condition (M = 19, F(1, 339) = 3 38, p = 067) As we expected for the combined spokescharacter and verbal attribute package cue condition, recall is no better for the combined advertisement (M = 24) than for the spokescharacter (M = 23, F(1, 339) = 13, p > 10) or verbal attribute (M = 21, F(1, 339) = 41, p > 10) advertisements In general, these recall results support our predictions in $H_{2a\text{–}c}$ for the match/mismatch of ad and package cues

A planned contrast for the presence of a competing attribute does not support our predictions about the spokescharacter ad–package cue condition Recall is lower for the presence (M = 15) than for the absence (M = 25) of the competing attribute (p < 05) Although they are not significant, the mean values for the verbal attribute ad–package cue match condition are in the predicted direction Recall is lower in the presence (M = 23) than in the absence (M = 27) of the competing attribute condition (F(1, 339) = 1 01, p > 10), and as we expected, the combined spokescharacter and verbal attribute ad–package condition is not adversely affected by the presence of competing information Overall, the findings that pertain to recall demonstrate minimal support of H_{2d}

Brand attitude Our predicted three-way interaction for A_b (see Table 3) is significant (p < 05), and the planned contrasts we used to assess our specific predictions when no competing cue is present indicate a significantly more favorable A_b for the spokescharacter package cue condition when the advertisement contains a character (M = 5 10) rather than a verbal attribute (M = 4 11, F(1, 339) = 8 83, p < 01) In contrast to our predictions about the verbal attribute package cue condition, A_b is relatively similar for the verbal attribute (M = 4 69) and the spokescharacter (M = 5 00) ad conditions (F(1, 339) = 94, p > 10) The results for the combined spokescharacter and verbal attribute package cue condition indicate that A_b is just as favorable for the spokescharacter (M = 4 97, F(1, 339) = 70, p > 10) and verbal attribute (M = 4 84, F(1, 339) = 19, p > 10) advertisements as it is for the combined spokescharacter and verbal attribute ad condition (M = 4 69), in support of our predictions

Regarding the presence of a competing attribute in the spokescharacter ad–package cue condition, the planned contrast supports our predictions and shows a similar A_b when the competing attribute is present (M = 5 07) and when it is absent (M = 5 10, F(1, 339) = 01, p > 10) Although it is not significantly different, the A_b for the verbal attribute ad–package cue condition appears to be lower with the presence (M = 4 24) than with the absence (M = 4 69) of the competing attribute (F(1, 339) = 1 97, p > 10) Despite means in the predicted direction, the anticipated effect of this condition is not supported As we predicted, however, A_b is not adversely affected when the competing attribute is present (M = 5 05) than when it is absent (M = 4 69) for the combined spokescharacter and verbal attribute ad–package condition (F(1, 339) = 1 15, p > 10) In summary, for A_b, H_{2a} and H_{2c} are supported, H_{2d} is partially supported, and H_{2b} is not supported That is, the three-way interactions and planned contrasts for recall and A_b offer partial support for our predictions in H_2

Main effects Whereas the findings for the hypothesized interactions are of the greatest theoretical interest, the main effect results in Table 3 suggest managerial implications for firms that are considering IMC-related issues The main effect of the ad cue on both brand attribute recall (F = 5 97, $p < 01$) and A_b (F = 7 67, $p = 001$) suggests some of the advantages that can be reaped by featuring spokescharacters in advertisements These mean values also reveal superior brand attribute recall scores for advertisements with combined spokescharacter and verbal attribute cues (M = 23) than for only verbal attribute cues (M = 19, $p < 01$) Advertisements that contain either the spokescharacter (M = 4 84) or the combined spokescharacter and verbal attribute cues (M = 4 74) rather than the verbal attribute cue alone (M = 4 41) also led to more favorable A_b ($p < 001$ and $p < 01$, respectively)

The main effect of package cues was also significant for both recall (F = 8 43, $p < 001$) and A_b (F = 3 94, $p < 01$) Again, various types of package cues produced beneficial effects For example, with the combined spokescharacter and verbal attribute package cue, as opposed to no package cue, both recall and A_b improved significantly Collectively, the significant interactions and main effects found in Experiment 2 suggest that marketers can benefit from using spokescharacters either alone or with verbal attributes

Discussion

Although the results for H_2 are mixed, these findings provide general support for the IMC-related predictions in the absence of competing information, especially for spokescharacters Both attribute recall and A_b are significantly greater for spokescharacter package cues when the spokescharacter rather than a verbal attribute is used in the ad condition Early pioneers already have established the role of pictorial icons relative to verbal cues during initial exposure (encoding) (e g , Childers and Houston 1984, Lutz and Lutz 1977), our work also supports the influence of icons at a subsequent contact point In addition, although recall benefits emerge for matched verbal attributes, A_b does not become significantly more favorable Although they are not significant, greater A_b mean values occur for the verbal attribute package cue with the spokescharacter rather than with the verbal attribute ad condition This finding suggests that some favorable brand information initially associated with spokescharacters during advertisement exposure can be accessed through verbal attribute cues on product packages and, in turn, influence A_b

Our results also demonstrate the effects of competing information on product packages Presenting a new attribute on product packages impairs recall for the spokescharacter ad–package cue condition but does not affect A_b adversely Collectively, previous results of the verbal match and this finding suggest that processes beyond cognition can account for A_b Other nonclaim, favorable brand associations appear to be generated by the spokescharacter and later accessed through the character Furthermore, as for the combined package condition, A_b is favorable for both the spokescharacter and the combined spokescharacter and verbal attribute ad conditions In summary, although our findings are not fully consistent with our predictions, they suggest that as long as advertisements contain a spokescharacter, A_b tends to be stronger

Experiment 3

To confirm and extend the findings about whether advantages gained by coordinated IMC campaigns are affected by the introduction of new, favorable brand information, we conducted a third study[6] Specifically, we wanted to assess the pattern of results further for any single modality conditions in which either the spokescharacter or the verbal attribute was used instead of the combined condition In Experiment 2, when the competing information was present, the character match condition did not yield the predicted memory advantage, but it resulted in more favorable A_b By separating ad and package exposures temporally and spatially in Experiment 3, we hope to increase the external validity and reassess the finding that the cosmetic coordination of spokescharacters at two points of contact promotes favorable attitudes, regardless of any new, competing information that may compromise recall

In terms of the method, this study differs from Experiment 2 in two specific ways First, we assess consumer responses to product package stimuli in a different environment than that for the ad exposure conditions Second, we gather the recall and A_b measures 24 hours after ad exposure Because the ad and package exposures are temporally and spatially distinct, we have created conditions that are more similar to the actual marketplace

Overview, Design, Manipulations, and Dependent Measures

Experiment 3 involved a 2 × 2 × 2 design with three between-subjects factors ad cue (spokescharacter versus verbal attribute), package cue (spokescharacter versus verbal attribute), and competing information (present versus absent) Consistent with Experiments 1 and 2, there were two different exposure stages We manipulated the ad cue with the advertisement and the package cue and competing information with the product package stimuli In the first stage, participants were exposed to an advertisement in a lab environment, in the second stage, they viewed the product package stimuli at their homes 24 hours later[7] At this later time, participants completed all measures

In Experiment 3, we used a single product category, namely, we used the ad and package stimuli for the cheese product and used the same placements of the ad and package manipulations as those in Experiment 2 We also gathered the same two dependent measures of brand attribute recall and A_b ($\alpha = 96$)

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[6] We appreciate the specific suggestions about the design of Experiment 3 provided by two anonymous *JM* reviewers

[7] We took several distinct steps to ensure that all study participants adhered to the specific study procedures Participants received a sealed package that included the delay condition materials, and they were instructed to open the package 24 hours later, on the seal of the back of the package, there was a label indicating that they should open it only after a specific hour In the space below this label, participants were told to write down the time they opened the package and sign their name They also were required to provide their name, the date, the time they began the study, and where they were located while completing the study on the front page of the materials inside the package All of the returned materials were checked, all participants provided the required information

Results

As a manipulation check, we performed an ANOVA to ensure that though the ad and package cues differed in terms of form, they did not differ in the meaning they conveyed As with the first two studies, we did not find any differences between the spokescharacter and the verbal attribute in terms of meaning or persuasiveness ($ps > 10$) [8]

Brand attribute recall The results of the specific planned contrasts when no competing attribute is present reveal effects similar to those we found in Experiment 2 for brand attribute recall In H_{2a}, we predicted that the matched ad–package condition for the spokescharacter would enhance recall, and it is supported marginally by greater recall for the spokescharacter package cue with the spokescharacter ad condition (M = 23) than with the verbal attribute ad condition (M = 16, F(1, 155) = 3 48, $p = 06$) Although it is not significant for the verbal attribute ad–package condition (H_{2b}), the pattern of means is in the predicted direction (Ms = 19 and 16, F(1, 155) = 43, $p > 10$)

The planned contrasts for the presence of a competing cue for these matched conditions (H_{2d}) are consistent with the findings from Experiment 2 as well For the spokescharacter ad–package condition, recall is marginally lower when the competing information is present (M = 16) than when it is absent (M = 23, F(1, 155) = 3 62, $p = 06$) The presence (M = 13) versus absence (M = 19) of the competing cue also results in lower mean values for the verbal attribute ad–package condition, though the difference is not significant (F(1, 155) = 2 55, $p > 10$) In summary, for the spokescharacter, recall appears to be slightly greater for matched than for mismatched conditions, and the spokescharacter ad–package condition results in the highest recall value (M = 23) of all ad–package conditions However, the presence of a new attribute appears to interfere with the retrieval of stored information, even in conditions in which the ad and package cues match

Brand attitude The planned contrast results also indicate consistency with the Experiment 2 findings for A_b As we expected for the ad–package match, the results show that A_b is better when the spokescharacter package cue condition is paired with the spokescharacter advertisement (M = 4 32) than when it is paired with the verbal attribute advertisement (M = 3 57, F(1, 155) = 3 92, $p < 05$), despite the spatial and temporally distinct ad and package exposure conditions For the verbal attribute package cue, A_b is similar for both the verbal attribute (M = 3 57) and the spokescharacter (M = 3 78) advertisements (F(1, 155) = 26, $p > 10$) We also found support for H_{2d}, which proposes that A_b is less susceptible to the unfavorable effects of competing information in the spokescharacter ad–package condition, the results show that the presence (M = 4 08) versus the absence (M = 4 32) of a competing cue does not compromise A_b (F(1, 155) = 31, $p > 10$) In addition, A_b is not significantly affected when the competing attribute is present (M = 3 23) than when it is absent (M = 3 57, F(1, 155) = 83, $p > 10$) in the verbal attribute ad–package condition The results also show that a match in the spokescharacter leads to a stronger A_b than does a match in the verbal cue, regardless of the presence or absence of competing information In summary, these findings show that the spokescharacter ad–package match results in a more favorable A_b, and seven of the eight comparisons made in Experiment 3 are consistent with those in Experiment 2

General Discussion

Implications and Contributions to Marketing Knowledge

Although IMC campaigns have been strongly endorsed by both practitioners and academic researchers (Duncan and Everett 1993, Low 2000), relatively few controlled studies focus on consumers' responses to integrated campaigns, and to our knowledge, none directly addresses the use of spokescharacters In this article, we use a series of studies to examine various IMC-related strategic combinations, including the use of spokescharacters versus verbal attribute cues, advertisement–package coordination, character relevancy, and the placement of new, favorable brand information on packages Drawing from encoding specificity, network associations, and ELM theory, we find empirical evidence for the potential benefits of using spokescharacters in IMC campaigns However, the higher-order interactions also suggest distinct conditions that must be considered if marketers are to realize both memory and attitudinal benefits

Specifically, across the various manipulations, the pattern of findings suggests only one option that provides both memory and attitudinal benefits More relevant spokescharacters rather than verbal attributes should be integrated into IMC campaigns in which there are no deviations from the primary message These findings support the argument that even seemingly minor cosmetic inconsistencies can be influential (Goodstein 1993)

For consumers who focus on brand information, Experiment 1 demonstrates that marketers can obtain considerable benefits through the introduction and consistent use of characters that are perceived as more relevant to products Related work in the spokesperson (e g , Kamins 1990, Till and Busler 2000), visual processing (e g , Heckler and Childers 1992, Lee and Mason 1999), and branding (e g , Herr, Farquhar, and Fazio 1996, Keller, Heckler, and Houston 1998) literature streams also indicates the relevancy advantage

However, consistent with research on incongruency (see, e g , Fiske 1982, Goodstein 1993), we find that less relevant characters may motivate some consumers (ad processors) to elaborate on their processing of brand information. Although in Experiment 1 this incongruency marginally enhanced brand recall, there is a major potential disadvantage of using less relevant characters, namely, such characters could generate affective, non-message-related associations that adversely affect brand evaluations when characters are presented at subsequent points of consumer contact (i.e., point of purchase). Thus, in terms of overall A_b, our results indicate that marketers will reap greater benefits by designing symbols that convey key attributes that are relevant to advertised brands.

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[8] To assess ad cue strength, we asked participants to respond to a two-item, seven-point scale that we adapted from the work of Petty, Cacioppo, and Schumann (1983) The scales were anchored by "unpersuasive/persuasive" and "a weak reason/a strong reason" ($\alpha = 72$)

We also note that a spokescharacter ad–package IMC match in the absence of competing information yields both greater recall of brand attributes and more favorable A_b in Experiments 2 and 3, which suggests the superiority of this specific mode of attribute presentation. This option requires that everybody involved with the IMC campaign understands its primary message and consistently presents that message along with the spokescharacter across different points of consumer contact. As Low (2000) notes, such coordination is often more difficult than might be anticipated. If marketers prefer the flexibility of introducing new (favorable) information in IMC campaigns that feature spokescharacters, some benefits still can be realized because spokescharacters featured both in advertisements and on packages yield favorable A_b even when competing information is introduced in the campaign. However, this new information represents a distraction that appears to compete for consumers' cognitive resources and minimize the effectiveness of the IMC match, which in turn reduces the ability of the package character to initiate memory traces that enhance the retrieval of brand attributes.

However, IMC campaigns that use verbal information to describe attributes are more common in the marketplace. Unfortunately, our findings suggest that only minor benefits appear to be associated with verbal attribute coordination. In coordinated IMC campaigns in which there are no inconsistencies, verbal attributes might offer memory-related benefits, as we show in Experiment 2, verbal attributes that are used in advertisements and then are repeated on product packages appear to prime memory traces that are beneficial for decision making. However, this condition does not offer memory advantages in Experiment 3, and it fails to offer marketers the key outcome (i.e., more favorable A_b) compared with spokescharacters. Even without competing information, the verbal attribute match does not yield the same favorable results as do spokescharacters. Furthermore, if the IMC campaign becomes inconsistent at any point, all memory-related benefits are lost. In summary, IMC campaigns that use verbal information to communicate attributes may be common and practical, but they appear to offer fewer advantages than the use of coordinated campaigns that involve spokescharacters.

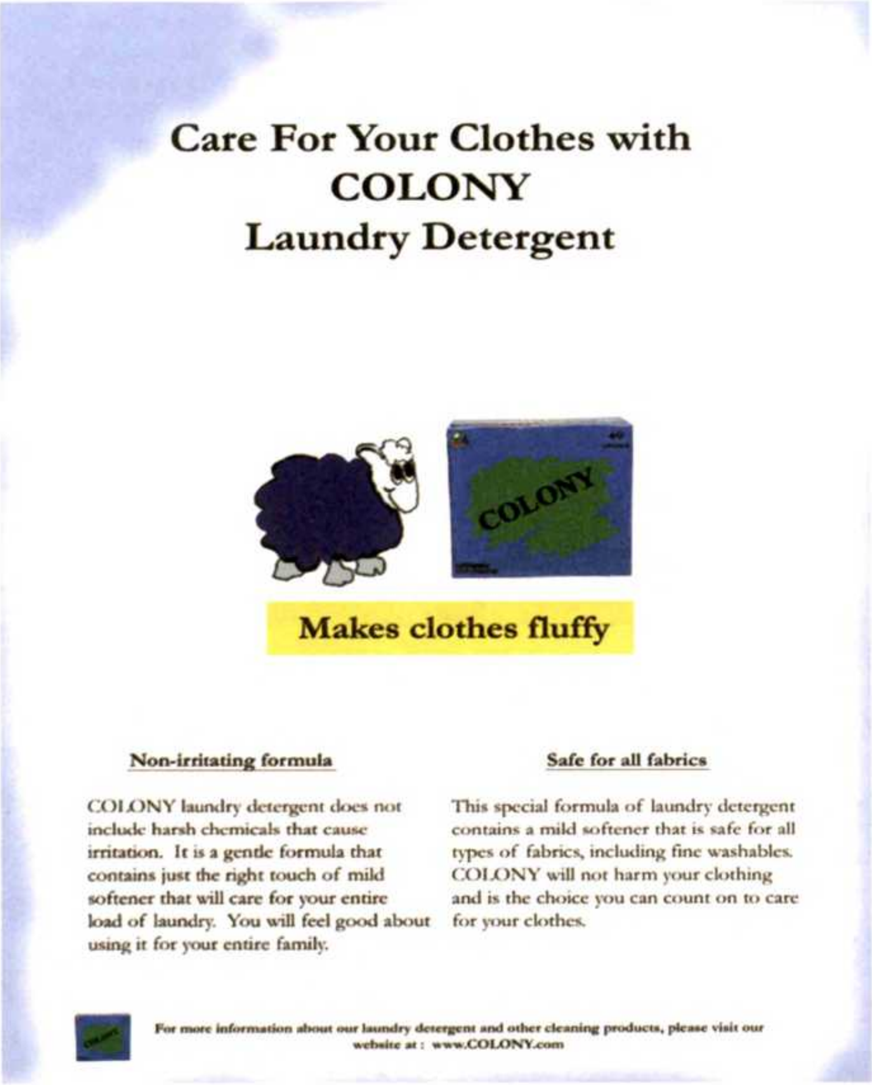
Contributions to Researchers, Limitations, and Further Research

This research offers several contributions to applications of encoding specificity, network associations, and ELM conceptual frameworks and suggests some opportunities for additional studies that involve spokescharacters and IMC coordination. The three-way interactions demonstrate the complexity of the issues related to initial encoding and the types of cues and conditions during subsequent IMC exposures. Across studies, our findings suggest that more relevant characters appear to possess persuasive benefits that are accrued regardless of whether they are processed peripherally, centrally, or both, which is consistent with prior work on attitude persistence (Sengupta, Goodstein, and Boninger 1997). Despite the relatively small research stream, marketing researchers recognize the importance of IMC campaign studies. For researchers who are interested in examining the influence of temporally and spatially distinct exposure IMC contexts, the methodology in Experiment 3 offers a practical means.

We acknowledge several limitations that are common to experimental marketing research. First, in all three experiments, study participants received only one opportunity to examine the stimuli. In practice, consumers may be exposed to spokescharacter/product pairings on many occasions over the course of months or years. However, the findings from this research illustrate that the favorable effects of these characters even may be gained initially when characters featured in advertisements also appear on product packages. Second, the distraction task we used between the advertisement and package exposure in Experiments 1 and 2 is shorter than the intervals usually experienced in the marketplace. However, this distraction procedure is consistent with prior memory-related research, which shows that the procedure effectively clears short-term memory (Hunt and Ellis 1999, Keller 1991). Furthermore, the third study offers a more externally valid procedure to test the effects. Finally, to limit effects of differences in prior knowledge, our experiments focused on fictitious brands and characters. Because results for more familiar brands and characters potentially vary (Campbell and Keller 2003), we recommend that further research address effects across familiar brands and characters.

Given the paucity of controlled studies involving spokescharacters, there are several directions for further research. Because we gathered measures during only the package exposure stage, further research might extend our findings by collecting cognitive responses and evaluations immediately after ad exposures to various ad treatments. This extension might clarify why the combined spokescharacter/verbal attribute package cue performed equally well across the three ad conditions in Experiment 2 or why in Experiments 2 and 3 brand attribute recall was impaired but favorable attitudes were not affected when competing information was presented for the spokescharacter ad–package condition. Perhaps the competing information consumed cognitive resources (Burke and Srull 1988, Eagly and Chaiken 1993, Krishnan and Chakravarti 2003), and the spokescharacter provided during retrieval activated the more favorable A_b previously developed through peripheral processing. It would also be worthwhile to examine whether spokescharacters suppress claims made in advertisements by competing brands and to assess differences in package claims that were supplemental rather than competing with the original ad claims. Such extensions would provide a

APPENDIX B
Advertisement with the Relevancy Manipulation (More Relevant Spokescharacter)



Care For Your Clothes with
COLONY
Laundry Detergent

Makes clothes fluffy

Non-irritating formula

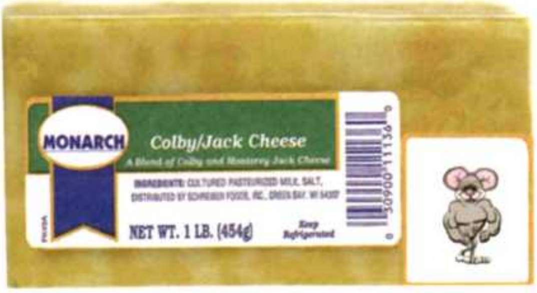
COLONY laundry detergent does not include harsh chemicals that cause irritation. It is a gentle formula that contains just the right touch of mild softener that will care for your entire load of laundry. You will feel good about using it for your entire family.

Safe for all fabrics

This special formula of laundry detergent contains a mild softener that is safe for all types of fabrics, including fine washables. COLONY will not harm your clothing and is the choice you can count on to care for your clothes.

For more information about our laundry detergent and other cleaning products, please visit our website at : www.COLONY.com

APPENDIX C
Package with the Package Cue Manipulation (Spokescharacter)



more complete explanation of the role of spokescharacters and verbal attributes in the memory process.

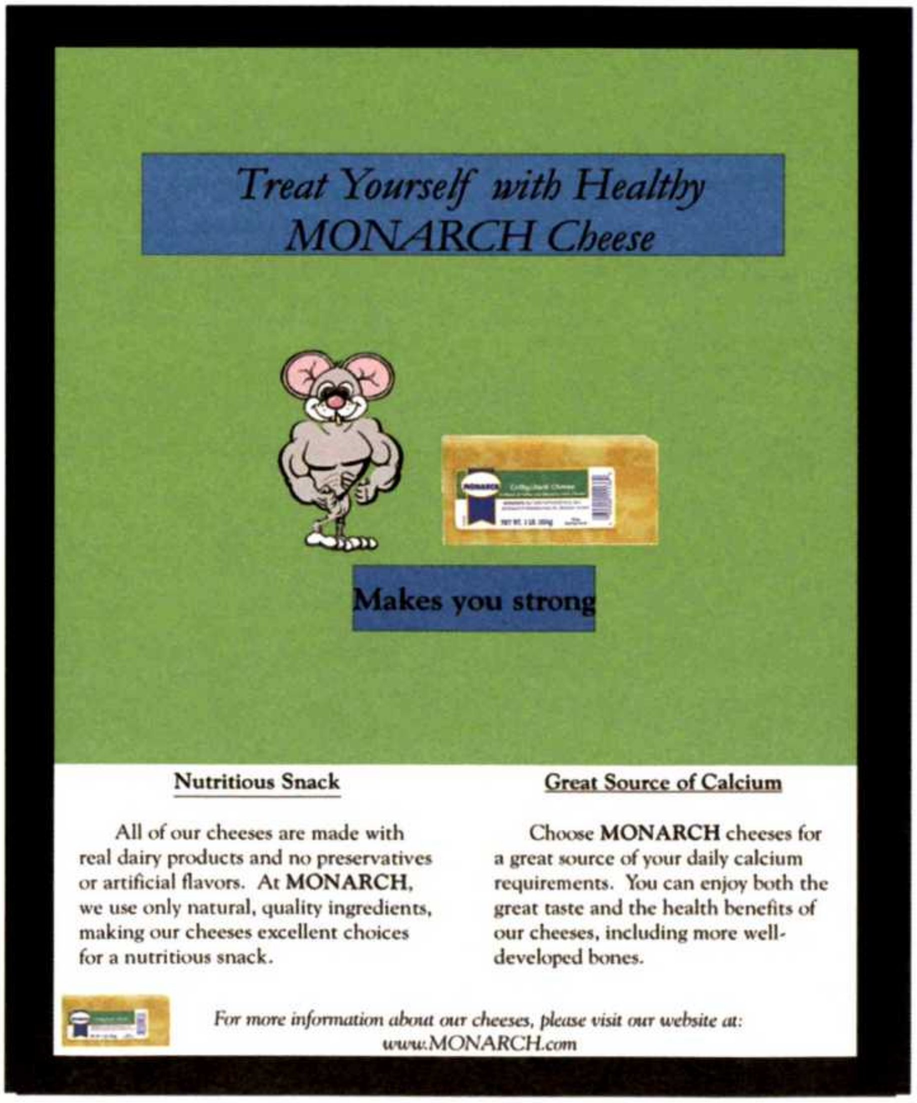
The continuous endorsements of IMC and the prolific use of spokescharacters in advertisements also warrant further inquiries that identify the boundary conditions for the effect of characters on recall and evaluations. One such issue related to the ELM is whether the strength of verbal claims can dominate spokescharacters and make them less powerful marketing communication cues. In addition, if researchers were to consider the effect of the package retrieval cues across brands with varying association and consideration set sizes, they might also identify the conditions in which characters have greater potential to benefit brands in terms of both memory and consumer choice.

Finally, spokescharacters might offer benefits beyond pure visual superiority. For example, in addition to depicting brand-relevant attributes, spokescharacters might embody certain perceived personality traits (Aaker 1997; Fournier 1998). Research that addresses these superiority effects of spokescharacters compared with other visual stimuli could complement our work by further examining the breadth of spokescharacters' value in campaigns.

In summary, although there is considerable opportunity for additional research, our findings contribute to the knowledge about the value of spokescharacters and empirical findings about IMC campaigns. The findings go beyond highlighting the general benefits of IMC (Naik and Raman 2003); they also demonstrate that even minor cosmetic deviations from coordinated campaigns can compromise measurable outcomes such as recall. In this day and age of fierce competition, brand parity, reduced loyalty, and brand accountability, marketers must understand the potential benefits and avoidable pitfalls of their efforts to enhance marketing communication effectiveness.

APPENDIX A

Advertisement with the Relevancy Manipulation (More Relevant Spokescharacter)


Treat Yourself with Healthy MONARCH Cheese
Makes you strong

Nutritious Snack

All of our cheeses are made with real dairy products and no preservatives or artificial flavors. At **MONARCH**, we use only natural, quality ingredients, making our cheeses excellent choices for a nutritious snack.

Great Source of Calcium

Choose **MONARCH** cheeses for a great source of your daily calcium requirements. You can enjoy both the great taste and the health benefits of our cheeses, including more well-developed bones.

For more information about our cheeses, please visit our website at: www.MONARCH.com decision-making aids so that we could test the predictions on the proposed drivers of trust.

Each respondent was assigned one Web site that he or she evaluated using the questionnaire after a browsing "tour" of that Web site. Respondents examined their assigned Web site according to this tour and were given time to examine the Web site further as they chose before completing the online survey questionnaire.

Model Formulation and Estimation

Our analysis consists of four parts: (1) SEM analysis of an overall model linking Web site and consumer characteristics to trust and behavioral intent, (2) mediation analysis of trust, (3) analysis of differences across Web sites, and (4) analysis of consumer heterogeneity. To estimate the relationships between site and consumer characteristics and trust, we estimated a measurement model that involves the antecedents and consequences of trust and an SEM that links Web site and consumer factors to trust and behavioral intent. For the mediation analysis, we performed partial and full mediation tests, as Baron and Kenny (1986) propose. We analyzed the differences across site categories using multigroup SEM analysis. We estimated a separate model for each site category and examined the mediating role of online trust separately for each category.

We performed the consumer heterogeneity analyses using a priori and post hoc segmentation methods. According to Wedel and Kamakura (2000), SEMs estimated on an aggregate sample may lead to serious biases if there are significant differences in model parameters across unobserved segments of population. There are two basic approaches to address this problem: a priori segmentation (in which consumers can be assigned to segments a priori on the basis of some demographic and psychographic variables) and post hoc segmentation. We performed the a priori segmentation using multigroup SEM analysis. A priori segmentation is typically useful, but it does not address unobserved heterogeneity. A finite mixture SEM analysis may be a more appropriate post hoc segmentation method for uncovering unobserved heterogeneity (Jedidi, Jagpal, and DeSarbo 1997).

In the finite mixture model framework, heterogeneous consumer groups are identified simultaneously with the estimation of the SEM in which all the observed variables are measured with error. This approach extends the classic multigroup SEM to the case in which group membership is unknown and cannot be determined a priori. The method enables us simultaneously to uncover customer segments and estimate segment-specific path coefficients in our main model. After the sample was partitioned into a finite number of groups, we performed a follow-up analysis to relate segment membership to observed demographic variables to identify marketing recommendations for various customer segments.

The finite mixture SEM is identified as long as the multigroup model for known groups is identified and the data for the unknown groups follow multivariate normal distributions. After establishing identification, we estimated the model using a modified EM algorithm (Dempster, Laird, and Rubin 1977). We then obtained converged estimates of model parameters with their asymptotic covariances. We can use the estimates to assign each consumer to one of the segments identified by the results. We used the MPlus 3.01 software to implement the EM algorithm estimation for the finite mixture modeling approach. For greater details on this methodology and its application, see Jedidi, Jagpal, and DeSarbo (1997) and Titterington, Smith, and Markov (1985). To estimate our model, we used two-thirds (4554) of our sample (6831).[2]

Results and Discussion

Overall Results

For the measurement model, in line with the work of Anderson and Gerbing (1988), we conducted a confirmatory factor analysis (see Table 4). The model fit is good, and the convergent validity and reliabilities for the scale items of the constructs are high.[3] We assessed the discriminant validity of the constructs using two different procedures, one proposed by Bagozzi, Yi, and Phillips (1991) and the other by Fornell and Larcker (1981). Both procedures yielded similar results.[4] Because at least one procedure supports strong discriminant validity, we conclude that, in general, our scales measure distinct model constructs. The correlation matrix of these 14 constructs appears in Table 5.

The results of the structural model for partial mediation, no mediation, and full mediation in the overall sample appear in Table 6. The partial mediation model fit metrics

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[2] Location of Internet usage is a potential control variable because it is possible that consumers have different degrees of trust in a Web site if they log in primarily from home or business, depending on their perceptions of the levels of security, firewall function, and how the information is exchanged on a Web site. This construct lacked the necessary validity and reliability in our data, so we do not include it in our final model. Therefore, as part of the measurement purification process, we dropped three variables (Q101, Q103, and Q104 in the questionnaire in the Appendix, relating to whether the consumer purchased on the Web site and the primary location from which the Internet is accessed—business or home) from the analysis.

[3] The chi-square statistic is significant ($p < .01$). The model fit is fairly good (e.g., root mean square error of approximation = .06, comparative fit index = .92). Moreover, all loadings on hypothesized factors are highly significant ($p < .001$) and substantively large (35 of 39 items have loadings greater than .70), which establishes convergent validity. Almost all the reliabilities of the individual scales we report in Table 4 are above recommended levels, ranging from .61 to .92 for Cronbach's alpha (Bagozzi and Yi 1988) and for composite reliability (Baumgartner and Homburg 1996) (for 12 of 14 constructs, greater than .83).

[4] In the first procedure that Bagozzi, Yi, and Phillips (1991) propose, each pair of constructs is analyzed through a pair of measurement models with and without the correlation between the constructs fixed to unity. We found that the chi-square statistic for the unconstrained model is significantly lower than that of the constrained model for each of 91 pairs in our model (difference in χ^2 ranges from 1505.24 to 9000.66, degree of freedom = 1, $p < .001$). In the second procedure, consistent with Fornell and Larcker's (1981) test for discriminant validity, the average variance extracted is greater than .5 for 12 of 14 constructs, and the average extracted variances were greater than the squared correlations for all but one pair of constructs (trust and intent).

TABLE 4
Measurement Model Results (N = 6831)

Item	Mean	Standard Deviation	Navigation and Presentation	Brand Strength	Privacy	Security	Advice	Order Fulfillment	Absence of Errors	Community Features	Shopping Experience	Entertainment Experience	Online Familiarity	Expertise	Behavioral Intent	Trust
Q2	5.23	1.39	.89													
Q4	5.30	1.42	.86													
Q10	5.12	1.45	.71													
Q19	4.99	2.13		.75												
Q20	5.27	1.45		.95												
Q23	5.18	1.31		.73												
Q27	5.29	1.52			.88											
Q28	5.31	1.48			.95											
Q32	4.93	1.54			.77											
Q35	.55	.50				.82										
Q36	.54	.50				.94										
Q37	.57	.49				.87										
Q52	4.02	1.70					.68									
Q54	4.40	1.58					.91									
Q55	4.33	1.57					.90									
Q71	.82	.39						.90								
Q72	.76	.42						.89								
Q74	.87	.34						.87								
Q77	5.63	1.82							.84							
Q78	5.97	1.51							.92							
Q79	6.13	1.32							.86							
Q89	.52	.50								.84						
Q90	.27	.45								.73						
Q91	.41	.49								.86						
Q96	.91	.29									.95					
Q102	.86	.34									.74					
Q98	.87	.33										.68				
Q99	.38	.48										.65				
Q100	.40	.49											.83			
Q109	6.05	16.81											.54			
Q105	5.12	1.48												.78		
Q106	4.85	1.50												.86		
Q107	5.42	1.34												.86		
Q118	4.67	1.78													.83	
Q119	4.99	1.66													.89	
Q122	4.22	1.97													.82	
Q124	5.11	1.28														.88
Q125	5.40	1.23														.87
Q126	5.10	1.27														.90
Variance extracted			.68	.66	.76	.77	.69	.79	.76	.66	.73	.44	.49	.70	.72	.78
Reliability			.86	.85	.90	.91	.87	.92	.91	.85	.84	.61	.65	.87	.88	.91
Cronbach's alpha			.85	.84	.90	.91	.86	.92	.91	.85	.83	.61	.62	.87	.88	.91

TABLE 5
Correlations Among Latent Constructs (N = 6831)

Construct	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Privacy	1.00													
2. Security	.14	1.00												
3. Navigation and presentation	.64	.14	1.00											
4. Brand strength	.46	.07	.50	1.00										
5. Advice	.48	.41	.49	.30	1.00									
6. Order fulfillment	.16	.51	.17	.10	.40	1.00								
7. Community features	.13	.52	.11	.08	.34	.53	1.00							
8. Absence of errors	.48	.00$^{\text{n.s.}}$	.52	.44	.33	.10	–.03	1.00						
9. Familiarity	.09	.14	.16	.45	.04	.12	.05	.14	1.00					
10. Online expertise	.28	.03	.26	.30	.19	–.02$^{\text{n.s.}}$	.02$^{\text{n.s.}}$	.32	.17	1.00				
11. Shopping experience	.08	–.05	.12	.16	.03$^{\text{n.s.}}$	.06	.14	–.08	.22	.32	1.00			
12. Entertainment experience	.09	.13	.12	.14	.13	.10	.21	.09	.06	.41	.15	1.00		
13. Behavioral intent	.53	.21	.61	.56	.50	.28	.18	.49	.47	.30	.30	.17	1.00	
14. Trust	.59	.16	.63	.64	.49	.20	.13	.57	.33	.39	.25	.20	.86	1.00

Notes: All correlations, except those with n.s. (not significant), are significant ($p < .05$).

(e.g., root mean square error of approximation, comparative fit index) are superior to those of the no mediation and full mediation models.[5] Three coefficients (absence of errors, privacy, and entertainment experience) are insignificant in the behavioral intent equation. Although brand strength has a small but negative and significant impact on behavioral intent in the behavioral intent equation, this result could be due to heterogeneity among consumers and across Web site categories, which we subsequently discuss. The effects of consumer characteristics are also consistent with our expectations. However, our interest is in exploring differences in these effects across Web site categories and consumer groups.

Differences in Drivers of Trust Across Web Site Categories

We used multigroup SEM analysis on the total (calibration and validation) sample to examine whether there are significant differences in the factor loadings and path coefficients across the eight different categories of Web sites used in our study. We used a testing procedure similar to the one we described in the previous section, estimating chi-square difference tests for three cases: (1) Every parameter is restricted to be equal in all eight categories (χ^2 = 81,176.86, degrees of freedom [d.f.] = 6069), (2) every parameter except path coefficients is restricted to be equal in all eight categories (χ^2 = 80,450.78, d.f. = 5894), and (3) every parameter except path coefficients and factor loadings is restricted to be equal in all eight categories (χ^2 = 74,645.54, d.f. = 5621).

Our data reject all null hypotheses of no significant differences in the effects of the drivers of online trust among the categories. We estimated the model separately for each category and analyzed the relative sizes of path coefficients in relation to our expectations. The maximum likelihood (ML) method typically used to report SEM results requires the sample covariance matrix to be positive and definite, which was not the case when we analyzed our data by separate categories. Therefore, following Wothke's (1993) suggestion, we also analyzed the data by the unweighted least squares method, which does not provide efficient estimates but offers consistent point estimates of the model parameters. The results show that the differences between these estimates are rather small, so we report only the ML estimates for the total sample in Table 7.

We discuss the results against the backdrop of our expectations and offer plausible explanations. First, privacy is highly influential for travel, and it is also important for e-tail and community Web sites. The findings for travel and community sites are consistent with our expectation that privacy is important for categories with high information risk. The frequent practice of providing personal information required for travel reservations and the common appearance of intrusive pop-up advertisements on travel Web sites exacerbate information risk for customers. Similarly, members of community Web sites share information freely with one another, so such Web sites are also susceptible to information risk. Furthermore, it appears that information risk may be high for some e-tail sites, making privacy important in this category.

Second, navigation is important for most categories of Web sites, but it is critical for sports, portal, and e-tail Web sites. Web sites in these three categories carry extensive information, and we expected navigation to be a more influential driver for such Web sites than for other Web sites. Therefore, this result supports our expectation. Consumers typically surf a sports-related Web site for quick information on their favorite event, sportsperson, or product, so navigation and presentation are critical. Because portals are information intensive, navigation is important for this category as well. Because e-tailers carry an array of items with deep information on their Web sites, good presentation of items and a quick path to desired items are important ele-

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[5] Consistent with the work of Anderson and Gerbing (1988), our results reject the null hypothesis for both nested model pairs (comparison with the fully mediated model: $\Delta\chi^2$ = 646.99, d.f. = 12, $p < .01$; comparison with the nonmediated model: $\Delta\chi^2$ = 750.74, d.f. = 1, $p < .01$). Independent latent variables explain a considerable portion of the variance in the endogenous constructs (64% for trust and 81% for behavioral intent).

TABLE 6
Results of the SEM of Trust and Behavioral Intent (N = 6831)

Relationship	Partial Mediation	No Mediation	Full Mediation
Web Site/Consumer Characteristics Impact on Trust			
Privacy → trust	.15 (.01)***	.28 (.03)***	.14 (.02)***
Security → trust	.00 (.01)	–.17 (.03)***	.00 (.01)
Navigation and presentation → trust	.17 (.02)***	.15 (.03)***	.19 (.02)***
Brand strength → trust	.26 (.02)***	–.30 (.04)***	.25 (.02)***
Advice → trust	.16 (.02)***	.35 (.03)***	.17 (.01)***
Order fulfillment → trust	.02 (.01)	–.07 (.03)**	.03 (.01)*
Community features → trust	.00 (.02)	.03 (.03)	.00 (.01)
Absence of errors → trust	.18 (.01)***	.24 (.02)***	.17 (.01)***
Familiarity → trust	.11 (.02)***	.72 (.03)***	.13 (.01)***
Online expertise → trust	.09 (.01)***	.01 (.03)	.07 (.01)***
Shopping experience → trust	.08 (.01)***	.05 (.02)*	.09 (.01)***
Entertainment experience → trust	.04 (.02)*	.10 (.03)***	.04 (.02)*
Web Site/Consumer Characteristics Impact on Behavioral Intent, Mediated by Trust			
Trust → behavioral intent	.70 (.02)***	—	.87 (.01)***
Privacy → behavioral intent	.02 (.01)	.36 (.05)***	—
Security → behavioral intent	–.01 (.01)	–.32 (.05)***	—
Navigation → behavioral intent	.12 (.02)***	.20 (.04)***	—
Brand strength → behavioral intent	–.08 (.02)***	–.94 (.10)***	—
Advice → behavioral intent	.11 (.01)***	.56 (.05)***	—
Order fulfillment → behavioral intent	.04 (.01)**	–.11 (.05)*	—
Community features → behavioral intent	.02 (.01)	.08 (.05)	—
Absence of errors → behavioral intent	–.01 (.01)	.24 (.04)***	—
Familiarity → behavioral intent	.24 (.02)***	1.42 (.10)***	—
Online expertise → behavioral intent	–.08 (.01)***	–.16 (.04)***	—
Shopping experience → behavioral intent	.09 (.01)***	–.09 (.04)*	—
Entertainment experience → behavioral intent	.01 (.01)	.16 (.05)***	—
χ^2 (d.f.)	10,295.03 (611)	11,045.76 (612)	10,942.02 (623)
RMSEA	.059	.061	.060
NFI	.918	.913	.913
NNFI	.906	.900	.902
CFI	.922	.917	.917
GFI	.896	.889	.890
RMR	.048	.049	.051

*$p < .05$.
**$p < .01$.
***$p < .001$.
Notes: Standard errors are in parentheses. Chi-squared difference tests are significant at the .001 level. RMSEA = root mean square error of approximation, NFI = normed fit index, NNFI = nonnormed fit index, CFI = comparative fit index, GFI = goodness-of-fit index, and RMR = root mean residual.

ments for building trust. Web sites with more easy-to-use features and greater ability to take the visitor quickly to his or her desired destination are in a better position to build trust than others.

Third, brand strength is a significant determinant of online trust for all categories except portals, but it is most important for automobiles, financial services, computers, and community sites. We hypothesized that brand strength is an important driver of online trust for categories with high involvement/high ticket price and for those involving high search effort. Automobiles, financial services, and computers are examples of such high-involvement/high-ticket-price items that need high consumer search. Therefore, the differences in the effect of brand strength on online trust across Web sites are consistent with our hypothesis. Brand strength is also high for sports sites, most likely because Nike, a powerful brand, was included in this category in our data.

Fourth, advice is an influential driver of online trust for automobile, computer, and travel-related products and e-tailers. We expected advice to be a powerful driver of trust for information-intensive Web sites whose product categories require a high degree of consumer search. Depending on the needs of the individual, automobiles, computers, and travel products can be complex to purchase and may require information assistance from the Web site. Web sites with the right suggestions and recommendations build confidence and trust with prospective buyers. Likewise, search goods and services on e-tail Web sites comprise intensive information. For such categories, advice is a dominant determinant of online trust.

Fifth, order fulfillment is most influential for travel products and e-tailers. We expected order fulfillment to be a dominant driver of online trust for Web site categories with high involvement/high ticket price. Travel is one such category. Because confirmation of a reservation immediately

TABLE 7
Results of Partially Mediated SEM by Web Site Category (N = 6831)

Relationship	ML	Automobile	Community	E-Tailer	Finance	Computer	Portal	Sports	Travel
Privacy→trust	.14*** (.01)	.16*** (.03)	.25*** (.06)	.22 (.08)***	.09 (.05)	.14* (.07)	.12*** (.04)	.13*** (.04)	.34*** (.07)
Security→trust	.01 (.01)	.01 (.03)	.01 (.05)	.03 (.03)	.05 (.04)	.03 (.04)	.02 (.03)	–.02 (.04)	.03 (.04)
Navigation and presentation→trust	.18*** (.01)	.11*** (.04)	.12 (.08)	.27 (.04)***	.20*** (.05)	–.06 (.09)	.29*** (.04)	.29*** (.04)	–.09 (.09)
Brand strength→trust	.27*** (.01)	.23*** (.03)	.42*** (.11)	–.12 (.21)	.35*** (.05)	.41*** (.07)	.06 (.05)	.28*** (.03)	.17* (.07)
Advice→trust	.16*** (.01)	.17*** (.04)	.04 (.08)	.23 (.06)***	.07 (.05)	.26*** (.06)	.18*** (.04)	.02 (.05)	.22*** (.04)
Order fulfillment→trust	.02 (.01)	–.07 (.04)	.09 (.07)	.14 (.04)***	–.07 (.04)	.08 (.05)	.01 (.02)	.04 (.03)	.44* (.20)
Community features→trust	.00 (.01)	.06 (.05)	–.04 (.05)	–.11 (.05)**	.11** (.04)	–.23*** (.05)	.04 (.03)	.05 (.04)	–.47* (.21)
Absence of errors→trust	.18*** (.01)	.22*** (.03)	.15** (.05)	.13 (.04)***	.15*** (.03)	.20*** (.05)	.19*** (.03)	.13*** (.03)	.21*** (.03)
Familiarity→trust	.12*** (.01)	.19*** (.03)	–.04 (.07)	.45 (.20)*	.09** (.04)	.01 (.03)	.14*** (.04)	.14*** (.03)	.18** (.06)
Online expertise→trust	.08*** (.01)	.02 (.02)	.07 (.04)	.06 (.03)*	.14*** (.03)	–.05 (.05)	–05 (.03)	.06* (.03)	.02 (.06)
Shopping experience→trust	.05*** (.01)	.04* (.02)	.02 (.04)	.07 (.05)	.05* (.02)	–.03 (.03)	.11*** (.02)	–.02 (.03)	.04 (.05)
Entertainment experience→trust	.03** (.01)	.00 (.03)	–.01 (.04)	–.01 (.04)	.03 (.04)	.20** (.06)	.03 (.03)	.09** (.03)	–.01 (.04)
Trust→behavioral intent	.73*** (.02)	.71*** (.05)	.58*** (.09)	.67 (.12)***	.44*** (.08)	.85*** (.09)	.72*** (.06)	.61*** (.06)	.71*** (.14)
Sample size		1087	513	1144	745	570	1105	848	819

*$p < .05$.
**$p < .01$.
***$p < .001$.
Notes: Standard errors are in parentheses.

becomes available to consumers for most travel services, fulfillment is particularly important for travel services. Because e-tail sites are purchase-oriented sites, fulfillment is an essential aspect for trust formation in the e-tail category as well. Although categories such as automobile and computers are also typically high-involvement categories, order fulfillment is not an influential driver of Web site trust in these categories. Furthermore, the influence of order fulfillment on trust is somewhat small for e-tailers. A possible reason for these findings is that our data did not include actual consumer purchases. Thus, the measure of order fulfillment may not reflect an experience-based rating.

Sixth, the absence of errors is consistently important for all Web site categories. We did not expect the effect of this Web site characteristic to differ much across Web sites. Consumers expect any Web site to be free of errors, so absence of errors could be a minimum expectation on the part of consumers, regardless of the Web site category.

Although we did not have any formal hypotheses for differences in the effects of consumer characteristics on Web site trust, our results show some differences. Familiarity with the Web site is a particularly important driver for automobile, travel, and e-tailer sites. Online expertise seems to matter for trust building only in financial Web site categories. Shopping experience is a strong determinant of trust for portal sites. Notably, entertainment or chat experience is strongly associated with trust for computers. Because we did not have a priori expectations of these effects, we treat these as notable empirical findings.

A summary of the expected and actual effects appears in Table 8. In most cases, the actual effects are consistent with the expected effects. However, some relationships are not in the expected directions. We can speculate about the reasons for these findings, but further research is necessary to address these issues. Community features are negatively associated with trust for travel and computer Web sites. Community features, such as bulletin boards and chat rooms, enable visitors to share and receive tips on travel and computer purchases or usage from other users. Sometimes, if negative comments and information dominate the Web sites, these features may be negatively associated with trust, thus possibly explaining the negative relationship. Surprisingly, security is not a significant determinant of trust for any Web site category. It is likely that the security level offered by each Web site in our study is above a threshold level for the consumers, so it is not a significant determinant of consumers' overall trust. Brand strength is a dominant driver of trust for community Web sites. We did not

TABLE 8

Predicted and Actual Categories with Dominant Effects of Each Web Site Driver of Online Trust

Driver	Predicted Categories	Actual Categories	Possible Explanation
Privacy	Community, travel	Travel	—
Security	Financial services, computer, travel	None	Perhaps security is so basic for all sites that it does not explain any variance in the presence of other drivers.
Navigation and presentation	Community, e-tailer, portal, sports	E-tailer, portal, sports	—
Brand strength	Automobile, financial services, computer	Automobile, financial services, computer, community	—
Advice	Automobile, e-tailer, financial services, computer	Automobile, e-tailer, computer	—
Order fulfillment	Travel, financial services, computer, e-tailer	Travel, e-tailer	The effect of order fulfillment could be understated for financial services and computer categories because the measures of behavior did not include any purchase or orders.
Community features	Community	Computers (–), travel (–)	For computer and travel categories, community features such as user groups and bulletin boards may give rise to complaining behavior such as venting, leading to a snowballing negative effect on trust.
Absence of errors	All	All	—

hypothesize this effect. We expected brand strength to be an important driver of trust at Web sites with high-involvement products and services. The community Web sites we used in the study were ancestry.com and foodtv.com. Consumer involvement tends to be high when consumers visit and interact with these particular sites. Therefore, it is not surprising that brand strength is a dominant driver for these two sites.

The mediating role of trust on the effects of drivers of online trust on behavioral intent is different for different Web site categories. The mediating effect of trust on behavioral intent is strongest for computer sites and weakest for financial services sites. However, even in the case of financial services Web sites, the mediating role of online trust on behavioral intent is stronger than any other direct effect of the drivers on behavioral intent. We hypothesized that the mediating role of online trust would be stronger for categories in which the involvement/ticket price is high and the product is infrequently purchased. Most of the activities at financial services Web sites involve frequent transactions in which consumers directly click on action buttons. Trust has less of a mediating role for such a situation than for infrequently purchased high-ticket items, such as computers, for which consumers may need to go through a longer intermediate phase involving trust formation.

Differences in Trust Drivers Across Consumer Segments

We used multigroup SEM analysis on the total sample to examine whether there were significant differences in the path coefficients across different demographic groups. The chi-square tests revealed that there were significant differences mainly across the education and income demographic splits. Brand strength is more influential for consumers with high education than for those with low education ($p < .01$). These results are somewhat surprising because we would expect consumers with low education or low income to rely more on navigation and those with high education or high income to be critical and not rely on the brand when developing trust in a Web site. A possible explanation is that high-income or high-education consumers spend less time on the Internet, relying on factors such as brand and advice to shape their trust levels and behavioral intent in relation to the site. Furthermore, it may be that more educated people are well aware of brands on the Internet and their value and are willing to attribute trust to the brand behind a site. In contrast, less educated people may not have much experience with brands on the Internet and may be somewhat skeptical of relying on them when building their trust in a site.

The results of the post hoc latent class mixture model segmentation appear in Table 9. To obtain convergent solutions by this method, we dropped the dichotomous variables without loss of generality as both the methodology and the software recommend. A six-segment solution was the best fitting and most interpretable solution. The demographic profiles of these segments are not dramatically different, so we do not discuss differences among them.

Segment 1 consumers reveal a balanced influence of all the drivers of online trust. It is the largest segment, constituting approximately 60% of the sample. Brand strength has the largest effect, but other major Web site characteristics also have significant effects on trust. Thus, for a majority of consumers, most Web site characteristics are important drivers of trust in relation to that Web site.

For consumers in Segment 2 (5% of the sample), the primary drivers of online trust are advice and brand strength. Advice is of paramount importance to this segment. Internet expertise, privacy, and navigation and presentation are not significant determinants of trust for this group.

Segment 3 consumers are somewhat similar to Segment 2 consumers in that they are predominantly concerned with advice. Segment 3 also constitutes a small portion (approximately 3%) of the sample. There are also some differences between Segments 2 and 3 with respect to other determinants of trust. For example, although brand strength has a significant influence on trust for Segment 2, it is insignificant for Segment 3. Surprisingly, the navigation and presentation parameter is negative, significant, and large for this segment. Although this anomaly could be due to statistical chance, it deserves further exploration in future studies.

The perceptions of trust for Segment 4 consumers are driven by brand strength, privacy, and advice. Segment 4 has approximately 6% of all consumers in the sample. Surprisingly, navigation and presentation and online expertise

TABLE 9
Results of Latent Class Finite Mixture Model of Post Hoc Segmentation

Web Site Characteristic	Segment 1 (60%)	Segment 2 (5%)	Segment 3 (3%)	Segment 4 (6%)	Segment 5 (6%)	Segment 6 (20%)
Privacy	.14*** (.02)	.25 (.11)	–.01 (.33)	.35** (.11)	.08 (.07)	.11* (.04)
Navigation and presentation	.21*** (.02)	.07 (.19)	–.87*** (.29)	–.07 (.17)	.33*** (.10)	.16** (.05)
Brand strength	.29*** (.01)	.26* (.09)	.22 (.13)	.50*** (.07)	.50*** (.08)	.37*** (.03)
Advice	.11* (.02)	.45** (.18)	.56** (.22)	.20* (.12)	–.25 (.27)	.25*** (.05)
Absence of errors	.12*** (.04)	–.07 (.56)	.40 (.61)	–.07 (.35)	.07 (.22)	.02 (.09)
Online expertise	.20*** (.02)	–.10 (.08)	–.18 (.17)	.09 (.09)	.23*** (.06)	.13** (.04)

*$p < .05$.
**$p < .01$.
***$p < .001$.
Notes: Figures in parentheses of segments are relative sizes of the segments in the sample. Figures in parentheses of parameters are standard errors. The large significant coefficients are not absolute but reflect the relative differences in the influence of these variables across the different segments.

are not important drivers of trust for this segment. The concern for privacy differentiates this segment from the others.

Segment 5 consumers are mainly driven by brand strength in their perceptions of Web site trust. As with Segments 2, 3, and 4, Segment 5 is small, constituting approximately 4% of the sample. Although brand strength seems to be the most dominant driver for this segment, navigation and presentation and consumer online expertise or Internet savvy are also significant drivers. Advice, privacy, and absence of errors are not significant.

The trust perceptions of consumers in Segment 6 are driven by advice, brand strength, navigation and presentation, and privacy. Segment 6 is the second-largest segment, containing approximately 20% of the sample. As with Segments 1, 4, and 5, brand strength has the largest effect. However, unlike Segments 1, 4, and 5, advice has a sizable effect on online trust. Online expertise is also a significant and important determinant of trust for this segment. Absence of errors, however, is not a significant determinant of trust for this segment.

In summary, for the majority of consumers, online trust is driven by the Web site's advice, navigation and presentation, and brand strength. Brand strength has a greater influence on online trust levels for people with higher education than for those with lower education.

Robustness Checks

We performed some robustness checks on the model results. First, we checked whether the partially mediated model of trust was true for a randomly chosen validation sample. We estimated the model separately on the calibration and validation samples (assuming invariant factor structure) and analyzed the differences between the path coefficients we obtained from the two samples overall and for each category. The factor correlations are fairly close, providing strong evidence for the predictive validity of our model.

Second, we used multigroup SEM analysis to perform a series of nested models estimations and respective chi-square difference tests for three cases: (1) Every parameter is restricted to be equal in both samples ($\chi^2 = 16{,}523.91$, d.f. = 1389), (2) every parameter except path coefficients is restricted to be equal in both samples ($\chi^2 = 16{,}490.67$, d.f. = 1364), and (3) every parameter except path coefficients and factor loadings is restricted to be equal in both samples ($\chi^2 = 16{,}487.17$, d.f. = 1325). Relaxing the restrictions on the path coefficients and factor loadings did not result in a significant improvement in model fit ($p > .10$), so we are confident about the predictive validity of the proposed model.

Managerial Implications

The key implications of our study are related to Web site differentiation strategy by category and customer segment. A company could allocate greater resources to the drivers of trust that are most influential for its category of Web sites. For example, automobile sites could focus on brand, advice, and navigation; community, financial services, and sports sites could focus on navigation and brand; computer sites could focus on brand and advice; portals could focus on navigation, privacy, and advice; and travel sites could focus on privacy, advice, and fulfillment.

Although we studied only eight categories, we can reasonably generalize the implications to a wide array of Web site categories based on the underlying Web site factors. A summary of the expected dominant drivers of online trust for 18 broad Web site categories appears in Table 10. We also list examples of subcategories under each broad Web site category together with the primary underlying Web site factors that influence the effects of the drivers of online trust. If these expected differences among Web site categories can be supported by further research, a Web site manager can use this summary to identify the key drivers that he or she should focus on to improve consumer trust in the Web site. For example, the manager of a Web site for children may want to emphasize navigation and presentation, whereas the manager of a car rental Web site may want to focus on privacy and order fulfillment features to build trust.

Companies can also build trust by differentiating and personalizing the site for different consumers by identifying customer groups on the basis of survey data. Our results suggest that the influence of different trust drivers, such as advice, brand, navigation, and absence of errors, differs across customers and that companies can personalize their Web sites for these different customer groups. If companies cannot obtain these data because of resource or time constraints, they can personalize their sites by the income or education level of the visitors. Although for the majority of consumers the influences of different drivers on trust are balanced, there is a sizable segment of consumers for whom brand and advice are the primary determinants of trust. The influential drivers of trust are different for consumers with different levels of education, and a company can emphasize the right trust drivers for the right consumer segment. Emphasizing the brand could be an effective trust-building initiative for highly educated, high-income consumers. Improving order fulfillment and privacy could also be the appropriate trust-generating effort for other groups of consumers. Companies can also personalize navigation and advice to suit the user's needs. For example, companies can enable the user to increase screen space for a personal advisor while reducing complex menu bars or enable a user to choose from a range of navigation styles (e.g., fast and direct versus personal and advisor driven).

The results have implications for the examples we discussed in the beginning of the article. For example, General Motors' Autochoiceadvisor Web site is characterized by the underlying Web site factors of financial risk and involvement. It correctly uses high brand strength and advice to gain trust and positive behavioral intent. However, it may want to reexamine its resource distribution and allocate more resources to navigation and presentation, which are also influential drivers of online trust for the automobile category. Similarly, Orbitz's use of Orbot to find and compare prices is an example of trust building through advice, but Orbitz could enhance trust by building its brand strength, emphasizing that it is co-owned by leading airline brands, such as United Airlines, American Airlines, and Delta Airlines. It could also differentiate itself and boost

TABLE 10
Expected Dominant Drivers of Online Trust for Each Web Site Category

Category	Examples of Subcategories	Primary Underlying Web Site Factor	Expected Dominant Drivers of Online Trust
Arts	Movies, television programs, writing, photography, painting	Information on the site	Navigation and presentation, advice, community features
Automobile	Finished vehicles, parts	Financial risk, involvement, search good	Security, absence of errors, brand strength, advice
Business	Marketing, e-commerce, entrepreneurship	Information on the site, financial risk	Security, absence of errors, navigation and presentation
Education	High schools, graduate schools, training, kids education	Information on the site, involvement	Brand strength, navigation and presentation
Electronics and computer	Computers, telecommunications, television sets, DVD players, camcorders	Financial risk, involvement, search good	Security, absence of errors, brand strength, advice
Finance	Banking, insurance, financial services, taxes	Financial risk, involvement, search good	Security, absence of errors, brand strength, advice
Family and community	Parenting, babies, kids, teens, genealogy, pets	Information on the site	Navigation and presentation
Fashion	Apparel, models, designs	Involvement, search good	Brand strength, advice, absence of errors
Health	Beauty, medicine, fitness	Information on the site	Navigation and presentation, advice, absence of errors, community features
Home	Real estate, gardening, moving	Financial risk, involvement, search good	Security, absence of errors, brand strength, advice
News and portal	Newspapers, magazines, auctions, search engines, shopbots	Information on the site	Navigation and presentation, advice, absence of errors, community features
Recreation	Humor, outdoors, games, toys	Involvement, information on the site	Brand strength, absence of errors, navigation and presentation, advice
Reference	Libraries, maps	Information on the site	Navigation and presentation, advice
Science	Space, biology, physics, chemistry	Information on the site	Navigation and presentation, advice
Shopping and e-tailer	Retail categories (grocery, drug, durables)	Financial risk	Security, absence of errors, order fulfillment
Society and community	Government, religion	Information risk, information on the site	Privacy, absence of errors, community features
Sports	Specific sports, athletics, sports news, sports apparel	Information on the site	Navigation and presentation
Travel	Airlines, hotels, car rentals, cruises	Information risk	Privacy, order fulfillment

trust by emphasizing privacy and fulfillment, the factors that are the most influential drivers of trust for travel Web sites. Intel's Download Web site's decision assistance tips have positive effects on building trust through better navigation. Nevertheless, it could build stronger trust by emphasizing its brand and focusing more efforts on an advisor because these are two factors that are significant in building trust for computer-related Web sites. Finally, although Dell's online trust is enhanced by its strong brand, it may want to allocate more resources to advice because its current site is cluttered with promotions. In general, managers should emphasize navigation, advice, and brand in their site design but also extend this to the more creative presentation aspects.

The findings also have some broad implications. Managers must go beyond privacy and security and focus on factors such as navigation and presentation, advice, and brand strength to enhance trust for their Web sites. Collectively, navigation and presentation, advice, and brand strength are more influential predictors of online trust than are privacy and security.

Another important finding of our work is that trust partially mediates the relationship between Web site characteristics and behavioral intent more strongly for some Web site categories than for others. Therefore, incorporating Web site cues that enhance trust can result in a long-term favorable consumer relationship with the firm, and trust cues need to be explicitly incorporated in Web site design strategies. Managers should think not only of direct effects on behavioral intent (e.g., sales effects from promotions at the Dell Web site) but also of the relationship effects of trust building, especially because the mediating effect of trust is strongest for computer-related products. Dell's promotions may have a positive short-term effect of increasing behavioral intent of buying, but the long-term effects of enhanced Web site trust may be more important. Managers of such Web sites should consider trust an intervening state that consumers must move through and design their Web sites to build consumer trust through all the previously cited elements.

A final implication of our results is for multichannel trust building. Multichannel shopping and marketing are growing trends. We examined the Internet, but many of the same factors are present in other channels, such as e-mail, telephone, direct mail, and physical store formats. Navigation and layout of the physical store are analogous to site navigation and presentation. Advice can be given by sales personnel or telemarketing operators. Brand strength is relevant in all channels. Privacy and security are relevant in the store, on the telephone, and on the Internet. Presentation is evident in store design, telephone conversations, and channel layout. Furthermore, each channel has its association with some product categories and its own geodemographics. Channel–category associations interact with customer geodemographics to explain a sizable portion of the share of volume of different channels (Inman, Shankar, and Ferraro 2004). Managers should maintain a high level of coherence across the channels so that trust-building efforts are reinforced throughout the multichannel consumer experience.

Limitations and Further Research

Our study has several limitations that further research could address. First, because our study is exploratory in nature, it could be replicated with other Web site categories and consumer groups, and some of the anomalies could be reexamined. Second, whereas online trust has an implicit dynamic nature, our study presents a cross-sectional view. Third, our study does not actually measure consumer action on the Web site in terms of actual purchase, so the effects of order fulfillment might be understated. Fourth, potential interactions among the drivers of Web site trust, such as that between brand strength and security, could be explored. Fifth, additional data on multidimensional measures of online trust and variables, such as number of years in business, reputation, offline presence, service quality, and length of relationships, could also help explore more potential antecedents of online trust. However, some of these variables are likely to be correlated among themselves and with the consumer and Web site characteristics in our study. Sixth, our research could be extended through behavioral and market experiments by sequentially altering specific Web site trust drivers we identified in our study to build an "Internet trust generator." Seventh, the indicators of the Web site characteristic constructs we used in the analysis are primarily reflective rather than formative, but formative indicators may provide a more comprehensive and richer representation of the constructs and potentially lead to fewer model misspecification errors (Jarvis, Mackenzie, and Podsakoff 2003).

Conclusion

This study empirically shows that the influences of Web site and consumer characteristics on trust and the role of trust in the relationships between trust drivers and behavioral intent are significantly different for different Web site categories and customer groups. Privacy and order fulfillment are the most influential determinants of trust for Web sites for which both information risk and involvement are high, such as travel sites. Navigation is strongest for information-intensive sites, such as sports sites, portals, and community sites. Brand strength is critical for categories with high involvement, such as automobile and financial services sites, and advice is the most powerful determinant for search good categories with high financial risk, such as computer sites. Online trust partially mediates the relationships between Web site and consumer characteristics and behavioral intent, and this mediation is strongest for sites with infrequently purchased, high-involvement items, such as computers. Conversely, it is weakest for sites that are oriented toward frequent transactions, such as financial services. The influences of different drivers on online trust are balanced for most customers, but there is a sizable segment of consumers for whom brand strength and advice are the primary determinants of online trust. Brand strength influences the online trust levels of people with higher education more than it does those of people with lower education. The results offer important implications for Web site design strategies.

APPENDIX
Questionnaire

Web Site Characteristics

1. The site is easy to use. *(Navigation)*
2. Overall layout of the site is clear. (Navigation)
3. The site layout is consistent across all pages. (*Navigation*)
4. The process for browsing is clear. (Navigation)
5. The site has legible images, colors, and text. (*Navigation*)
6. The site uses simple language. (*Navigation*)
7. The site uses a layout that is familiar. (*Navigation*)
8. There is a readily available site map (a summary of site links), which allows you to figure out where to go and what you can do at the site. (*Navigation*)
9. There are useful links to other sites that aid the primary purpose of coming to this site. (*Navigation*)
10. The site is visually appealing. (Navigation)
11. The visual appearance and manner of the site is professional (not amateur looking). (*Navigation*)
12. The site displays a high level of artistic sophistication/creativity. (*Navigation*)
13. This site features are state-of-the-art, better than most sites in this industry. (*Navigation*)
14. The site visually conveys a sense of honesty. (*Navigation*)
15. The site feels warm and comforting. (*Navigation*)
16. The site is engaging and captures attention. (*Navigation*)
17. The site is entertaining. (*Navigation*)
18. Information on the site can be obtained quickly. (*Navigation*)
19. I am familiar with the company whose site this is. (Brand)
20. The site represents a quality company or organization. (Brand)
21. The site carries products and services with reputable brand names. (*Brand*)
22. I am generally familiar with other brands (products and services) being advertised on the site. (*Brand*)
23. The quality of the brands being advertised on this site is consistent with the quality of the site's sponsoring company. (Brand)
24. The site is consistent with my image of the company whose site this is. (*Brand*)
25. The site enhanced how I feel about the company whose site this is. (*Navigation*)
26. The general privacy policy is easy to find on the site. (*Privacy*)
27. The text of the privacy policy is easy to understand. (Privacy)
28. The site clearly explains how user information is used. (Privacy)
29. Information regarding security of payments is clearly presented. (*Privacy*)
30. Informational text regarding the site's use of cookies is clearly presented. (*Privacy*)
31. I believe the company sponsoring this site will not use cookies to invade my privacy in any way. (*Privacy*)
32. The site explains clearly how my information will be shared with other companies. (Privacy)
33. I would be comfortable giving personal information on this site. (*Privacy*)
34. I would be comfortable shopping at this site. (*Privacy*)
35. There were signs or symbols on the site placed there by third-party companies indicating that the site had been reviewed or audited for sound business practices. (Security)
36. There were trust seals present (e.g., TRUSTe). (Security)
37. There were seals of companies stating that my information on this site is secure (e.g., Verisign). (Security)
38. Information is present indicating that this site has received a best site award. (*Security*)
39. Endorsement by celebrities is present. (*Community*)
40. Testimonial/endorsement by past users is present. (*Community*)
41. The site content is easy for me to understand. (*Navigation*)
42. The content appears to be up-to-date. (*Navigation*)
43. The site provides accurate and relevant information. (*Navigation*)
44. The site provides me with sufficient information to make a purchase decision on all products being offered. (*Advice*)
45. The illustrations for the products and services at the site are helpful in making a purchase decision. (*Navigation*)
46. The site has useful shopping support tools (such as a calculator or planner). (*Advice*)
47. The site provides an explanation of services and products being offered. (*Advice*)
48. The site set up can be personalized to my needs. (*Advice*)
49. The site can recommend products based on previous purchase. (*Advice*)
50. The site allows me to create products or services to exactly fit my needs. (*Advice*)
51. Products can easily be compared. (*Advice*)
52. Comparisons of all competing brands are presented. (Advice)
53. Good shopping tips are provided. (*Advice*)
54. To recommend products, easy to answer questions are asked about my preferences. (Advice)
55. Useful shopping recommendations are made based on my personal information and preferences. (Advice)
56. The site is helpful to me in reaching my buying decisions. (*Advice*)
57. The site presents both benefits and drawbacks of products and services. (*Advice*)
58. A toll free number is easily found for live help. (*Advice*)
59. Informative magazine articles or editorial content are present. (*Community*)
60. The site asks questions to determine needs and preferences. (*Advice*)
61. There is a search tool to help find information on the site. (*Order fulfillment*)
62. It is possible to interact on the screen with a shopping advisor. (*Community*)
63. It is possible to contact a shopping assistant through e-mail. (*Order fulfillment*)
64. It is possible to communicate via fax to an expert advisor. (*Community*)
65. The site appears to offer secure payment methods. (*Order fulfillment*)
66. The site accepts a variety of payment methods. (*Order fulfillment*)
67. Easy ordering and payment mechanisms exist. (*Order fulfillment*)

APPENDIX
Questionnaire

68. Service and product guarantees are clearly explained. (*Order fulfillment*)
69. Shipping and handling costs are listed up front. (*Order fulfillment*)
70. The site tells me immediately if something is out of stock, so time is not wasted going through the checkout process and finding this out later. (*Order fulfillment*)
71. Delivery options are available. (Order fulfillment)
72. Return policies or other measures of accountability are present. (Order fulfillment)
73. Once an order is placed, it can be tracked to see where it is in the shipping process. (*Order fulfillment*)
74. Order confirmation is given via e-mail. (Order fulfillment)
75. The items I looked at were in stock. (*Order fulfillment*)
76. The Internet links were in working order. (*Absence of errors*)
77. There were no errors or crashing. (Absence of errors)
78. There were no busy server messages. (Absence of errors)
79. There were no pages "under construction." (Absence of errors)
80. The download time was acceptable. (*Absence of errors*)
81. All text and menus displayed properly. (*Absence of errors*)
82. The site and its contents could be accessed without requiring too much personal information. (*Absence of errors*)
83. All features of the site could be used without the requirement to download programs (such as downloading a "flash" program to watch a video or to hear music). (*Absence of errors*)
84. It is easy to interact with other users of this site who may have bought things at the site before or who use the site frequently. (*Community*)
85. I enjoyed the overall experience of the site. (*Navigation*)
86. I found games/puzzles/freebies or gifts on the site. (*Community*)
87. I found photos of people/family/kids on the site. (*Community*)
88. I found bios of executives on the site. (*Community*)
89. The site allows user direct input or posting to site (e.g., bulletin board, e-mail, personals). (Community)
90. Evidence of the site participating in philanthropy/charity is present. (Community)
91. A chat room is available where consumers can discuss their experience with the site and/or its products. (Community)

Customer/Consumer Characteristics

94. I use the Internet as an information tool.[a]
95. I use the Internet for e-mail.[a]
96. I use the Internet for shopping. (Shopping experience)
97. I use the Internet for banking/investing. (*Shopping experience*)
98. I use the Internet for entertainment. (Entertainment or chat experience)
99. I have used the Internet to take part in chat rooms. (Entertainment or chat experience)
100. Before this survey, I was familiar with the site I have just evaluated. (Familiarity)
101. I have made a purchase on this site in the past. (*Familiarity*)[a]
102. I have purchased products or services at other sites by completing the transaction online. (Shopping experience)
103. I use the Internet primarily for business/work related activities.[a]
104. I use the Internet primarily for household related activities.[a]
105. I consider myself to be quite knowledgeable about Internet sites in general. (Online savvy/Expertise)
106. I am confident in my ability to assess trustworthiness of web sites. (Online savvy/Expertise)
107. I am confident in my ability to assess the quality of a site. (Online savvy/Expertise)
108. The number of hours I spend per week on the Internet are: (*Entertainment or chat experience*)
109. Before today, approximately how many times had you visited this site? (Familiarity)

Demographics

110. What is your gender?
111. What is your age?
112. What is your employment status?
113. What is the highest level of education you have completed?
114. Including yourself, how many people live in your household? (Select one)
115. What is your household's combined yearly income? Be sure to combine the total income for all household members living with you such as wages or salaries, income from self-employment, rents, dividends, etc.—BEFORE tax deductions. (Select one)
116. Where do you live? (Select one)

Trust Items

117. This site appears to be more trustworthy than other sites I have visited. (*Trust*)
123. The site represents a company or organization that will deliver on promises made. (*Trust*)
124. My overall trust in this site is. (Trust)
125. My overall believability of the information on this site is. (Trust)
126. My overall confidence in the recommendations on this site is. (Trust)

Behavioral Intent Items

118. I would purchase an item at this site. (Intent)
119. I would recommend this site to a friend. (Intent)
120. I am comfortable providing financial and personal information on this site. (*Intent*)
121. I would book mark this site. (*Intent*)
122. I would register at this site. (Intent)

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[a] This item does not represent any particular construct in the SEM.

Notes: The construct onto which the corresponding item loads highest is in parentheses after that item. Corresponding constructs appear in italics for items not included in the SEM.

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Tim Ambler

Maximizing Profitability and Return on Investment: A Short Clarification on Reinartz, Thomas, and Kumar

Reinartz, Thomas, and Kumar (2005) provide a valuable methodology for balancing resources between customer retention and acquisition. They also conclude that optimal profitability (net return) coincides with optimal return on investment. This article clarifies this perhaps surprising conclusion and shows that it arises from the authors' methodology rather than from the data. More conventional analysis of the same data indicates that maximum return on investment is reached with lower expenditure than maximum profitability.

Reinartz, Thomas, and Kumar (2005) provide a valuable methodology for balancing resources between customer retention and acquisition. A small part of that article concludes that the level and balance of retention and acquisition expenditures that maximize long-term customer profitability also maximize return on investment (ROI). Because ROI (net return divided by expenditure) is usually maximized at lower levels of marketing expenditure, this conclusion is surprising and prompts this note of clarification.

The law of diminishing returns posits that beyond a certain point, the profit return for incremental expenditure begins to decline. As long as the incremental profit exceeds the cost, total profit continues to increase, but ROI progressively decreases. In other words, ROI is usually maximized at a lower expenditure than total profit (or cash flow). There are exceptions. For example, a seller of ice creams on a beach may find 30% of the people present to be on no-ice-cream diets and the remaining 70% happy to buy one item each, but no more. If marketing costs are low, both the seller's profit and ROI are maximized at 70% penetration because a ceiling has been reached.

Reinartz, Thomas, and Kumar's (Table 5, p. 74) data show no ceiling and a flattish response curve around the optimum: 10% more or less expenditure only reduces profit by .08%. The return from the last 25% of expenditure before optimal (7.35%) is greater than the decrease from the 25% above optimal (.49%).

All figures are given per customer, and the profit figures are after marketing costs are deducted. The optimal levels are $754,088, $134.55, and $503.77 for long-term profit, acquisition, and retention spending, respectively (Reinartz, Thomas, and Kumar 2005, Scenario 1, Table 4, p. 72). The remarkably high return is not relevant to this discussion. The ROI at optimal profitability is therefore (754,088/[134.55 + 503.77]), or 1181, because the profits were net of expenditures. Typically, ROI is expressed as a percentage, but in this case 118,100% is too large a number to make sense; therefore, we can dispense with percentages.

With respect to Tables 5 and 6 (Reinartz, Thomas, and Kumar 2005, p. 74), reducing both acquisition and retention expenditure by 25% gives $.75(134.55 + 503.77), or $478.74. Thus, the ROI at the 75% of expenditure is (698,676/478.74), or 1459 (i.e. 23.5% greater than the ROI in the article at optimal profit level). However, Table 7 (p. 76) shows that when Reinartz, Thomas, and Kumar's methodology is used, it is 116.74 lower. This must be considered more closely.

Reinartz, Thomas, and Kumar's methodology claims to compute ROI in line with Rust, Lemon, and Zeithaml's (2004) approach, which defines ROI consistently with this article, namely, the change in incremental customer equity (long-term discounted profit net of expenditure) divided by the discounted expenditure. Reinartz, Thomas, and Kumar seem to be using that to calculate changes in ROI *from the optimal profitability level*, which is unusual but defensible. The reduction in profitability at 75% of the spend level is therefore $754,088 – $698,676, or $55,412. Note that Reinartz, Thomas, and Kumar's profitability figures are net of expenditure, whereas customer equity in Rust, Lemon, and Zeithaml's article is before marketing expenditure. The reduced expenditure is $.25(134.55 + 503.77), or $159.58. Therefore, the ROI on the difference between spending at the two levels is 55,412/159.58, or 347. In other words, ROI has increased by this amount because the numerator and the denominator of the ratio have the same sign. This does not equate with Reinartz, Thomas, and Kumar's *reduction* of 116.74 either, but the gap has been closed.

Reverse engineering provides the answer. For each of the 25 (5 × 5) cells in their Table 7, the methodology used to calculate the change in ROI seems to be as follows:

(Profitability – Optimal profitability – Total expenditure for that cell)/Total expenditure for that cell.

This formula is taken verbatim from Rust, Lemon, and Zeithaml's (2004, p. 115) expression, which shows the change in customer equity, but expenditure is not shown as the change in spending. This may be the cause of the misunder-

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standing because Rust, Lemon, and Zeithaml intended the usual formulation (i.e., either change in profits divided by the change in expenditure or total profits divided by the total expenditure). As I previously noted, Rust, Lemon, and Zeithaml's formula is conventional and does not imply that the incremental net profit should be divide by the total cost. Table 1 shows the calculations using the preceding formula. Apart from one (the third to last) cell, most likely due to a typographical error, all the results match.

This note attempts to clarify Reinartz, Thomas, and Kumar's unusual finding of the optimal profit and ROI points coinciding. This arises from a rather individual, and some might think questionable, formulation of ROI that divides incremental profit by total expenditure, working away from the optimal profit position. Using more conventional means of calculating ROI (e.g., Rust, Lemon, and Zeithaml's [2004] formula), ROI is maximized well before profitability (i.e., at a lower level of marketing expenditure).

TABLE 1
Reverse Engineered Changes in ROI Compared with Reinartz, Thomas, and Kumar's Table 7

Level of Acquisition Spend	Level of Retention Spend	Total Spend	Profit (Table 5)	Reverse Engineered Change in ROI	Reinartz, Thomas, and Kumar ROI Change (Table 7)
.75	.75	478.7	698,676	−116.75	−116.74
.9	.75	498.9	727,163	−54.97	−54.97
1.0	.75	512.4	726,273	−55.29	−55.29
1.1	.75	525.8	736,623	−34.21	−34.21
1.25	.75	546.0	750,358	−7.83	−7.83
.75	.9	554.3	752,459	−3.94	−3.94
.9	.9	574.5	753,491	−2.04	−2.04
1.0	.9	587.9	753,688	−1.68	−1.68
1.1	.9	601.4	753,491	−1.99	−1.99
1.25	.9	621.6	752,458	−3.62	−3.62
.75	1.0	604.7	752,859	−3.03	−3.03
.9	1.0	624.9	753,891	−1.32	−1.31
1.1	1.0	651.8	753,891	−1.30	−1.3
1.25	1.0	672.0	752,858	−2.83	−2.83
.75	1.1	655.1	752,459	−3.49	−3.49
.9	1.1	675.2	753,491	−1.88	−1.88
1.0	1.1	688.7	753,688	−1.58	−1.58
1.1	1.1	702.2	753,491	−1.85	−1.85
1.25	1.1	722.3	752,458	−3.26	−3.26
.75	1.25	730.6	750,359	−6.10	−6.10
.9	1.25	750.8	751,392	−4.59	−4.59
1.0	1.25	764.3	752,588	−2.96	−4.27
1.1	1.25	777.7	751,391	−4.47	−4.47
1.25	1.25	797.9	750,358	−5.67	−5.67

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TERADATA CENTER *for*
CUSTOMER RELATIONSHIP MANAGEMENT
at DUKE UNIVERSITY

William Boulding, Richard Staelin, Michael Ehret, & Wesley J. Johnston

A Customer Relationship Management Roadmap: What Is Known, Potential Pitfalls, and Where to Go

The goal of this preface is to describe how the special section on customer relationship management (CRM) was developed. In May 2003, Richard Staelin, Executive Director of the Teradata Center for Customer Relationship Management at Duke University, proposed that *Journal of Marketing* (*JM*) publish a special section. The proposal included activities that were designed to promote interactions among marketing academics and practitioners; the goal was to stimulate dialogue and new research on CRM. I found the proposal attractive because CRM is a broad-based topic that interests many marketers. After extensive discussion, the American Marketing Association (AMA) and the Teradata Center formally agreed to cosponsor the special section. Subsequently, there was a conference on Relationship Marketing and Customer Relationship Management (cochaired by Michael Ehret, Wesley Johnston, Michael Kleinaltenkamp, and Lou Pelton) that took place at Freie Universität Berlin in the summer of 2003;[1] a conference on Customer Management (cosponsored by the Marketing Science Institute and the Teradata Center) that was held at Duke University in March 2004; and two special sessions on CRM that were featured at the AMA Winter Educators' Conference held in San Antonio, Tex., in February 2005. The conferences provided many opportunities for dialogue, and the response from marketers who attended these events was enthusiastic. I also invited Richard Staelin and William Boulding (Executive Codirector of the Teradata Center) to work with me as consulting editors for the special section, and they agreed. A call for papers requested that authors submit their manuscripts to *JM* by May 2004. The consulting editors and I evaluated every submission with the assistance of an expert panel that included Leonard Berry, John Deighton, Michael Ehret, Christian Grönroos, Sunil Gupta, Wayne Hoyer, Wagner Kamakura, Wesley Johnston, Donald R. Lehmann, Charlotte Mason, Carl Mela, Scott Neslin, Roland Rust, Michel Wedel, and Valarie Zeithaml. All submissions underwent *JM*'s standard double-blind review process, and members of *JM*'s editorial review board served as reviewers. I would like to express my appreciation to everyone who participated in the development of the special section. The culmination of our work together is a set of nine articles and two essays that advance the science and practice of CRM. I hope that these articles stimulate new intellectual discoveries.

—Ruth N. Bolton

This article introduces the ten articles that appear in this special section on customer relationship management (CRM). An overarching goal of this article is to provide the reader with a roadmap that places these articles in the context of the CRM landscape. We suggest 11 propositions about what is known about CRM and the potential pitfalls and unknowns that firms face in the implementation of CRM. We also provide six recommendations for further CRM research. We organize our discussion around these themes before offering concluding comments.

What Is Known About CRM

Before assessing what is known about CRM, we begin by placing the field of CRM in the overall context of marketing thought.[2] Many years ago, economists introduced the concept of value maximization, whereby a firm maximizes

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[1] This conference was cosponsored by the AMA Relationship Marketing Special Interest Group.

[2] Space constraints force us to take a 40,000-foot perspective on the field. Thus, we do not provide an exhaustive review of the CRM literature, much less the relevant marketing literature.

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profits and consumers maximize utility. Today, we have the concept of CRM. Theorists in this area still emphasize firm performance and customer value, though they also talk about the dual creation of firm and customer value (Payne and Frow 2005; Rogers 2005; Vargo and Lusch 2004). The question we raise is whether the field's focus on CRM sheds light on the understanding of customer and firm behavior or whether it just creates more "heat." Many vendors argue that CRM requires a paradigm shift in firm behavior. If this is true, CRM is truly a really big new idea. However, others contend that the concepts of CRM are not fundamentally different from what economists put forward many years ago. If this is so, the following questions arise: Is CRM anything other than a repackaging of basic marketing ideas that have extended and built on the classic economic paradigm? Should CRM be viewed simply as one of many jargon-laden fads that have come and gone in the business world? Or is a third explanation possible? Namely, does CRM represent the evolution and integration of marketing ideas and newly feasible and cost-effective technologies? In this view, CRM is neither a fad nor a paradigm shift. After observing the development of the CRM field, we offer the following proposition:

> P_1: CRM is the outcome of the continuing evolution and integration of marketing ideas and newly available data, technologies, and organizational forms.

To support this proposition, we briefly document this evolution.

One of the original big ideas in marketing is that for firms to stay in existence, they should not focus on selling products but rather on fulfilling needs (Levitt 1960). Thus, a drill manufacturer is in the business of providing a customer a hole, and a railroad company is in the business of providing transportation. This is a key component of CRM because the emphasis is not on how to sell the product but rather on creating value for the customer and, in the process, creating value for the firm (staying in existence). In other words, it is a process of dual creation of value. Levitt (1969) introduced the concept of the augmented product, stressing that consumers are interested in the total buying experience, not just the core product. Again, CRM relies on this concept because it tries to find the specific elements of the exchange process that produce value to the customer.

Bagozzi (1974) refocused people's attention on the actual exchange process by reiterating the fundamental economic concept that an exchange occurs only when both parties perceive that they are receiving value. Almost ten years later, Berry (1983) shifted the emphasis to the relationship between the company and the customer. At the time, his interest was in the service sector and the need for the service organization to attract customers and then maintain and enhance these customer relationships. On the basis of his ideas and related conceptual work (Arndt 1979; MacNeil 1978; Morgan and Hunt 1994), the concept of building relationships was expanded to several different domains, such as industrial buyer–seller relationships (Dwyer, Schurr, and Oh 1987) and channels of distribution (Gaski 1984). Others adopted the idea of building relationships and extended it conceptually in various ways (Boulding et al. 1993; Grönroos 1994; Gummesson 1987; Webster 2002). This body of literature discusses concepts that are relevant to CRM, such as the influence of prior experience on future customer expectations, the different treatment of each customer, and the value of long-term relationships.

Concurrently, other marketing scholars turned their attention to the core capabilities of the firm that were necessary to develop and maintain good customer relationships. In some sense, this was a formalization of the concept and processes implied by the "three Cs" (i.e., customer, company, and competitor) analysis. As a result, concepts such as market orientation (Kohli and Jaworski 1990; Narver and Slater 1990), market focus (Day 1994), and market-based learning (Vorhies and Hunt 2005) were developed that emphasized the establishment of good information processes and capabilities within the firm to understand the needs and wants of customers, thus making firms more efficient and effective in managing customer relationships. In addition, there was an evolution from product, or brand, management to customer management (Sheth 2005) and from product portfolio management to customer portfolio management (Johnson and Selnes 2004). These transitions were due in part to work in the area of brand equity, which recognized that equity resides in the minds of consumers (Keller 1993); this shifted the locus of attention from brands and products to customers.

With these developments in marketing as a backdrop, there was an explosion of customer data in the 1980s. Although some attempts were made to organize these data for analytic purposes, many firms were overwhelmed by this onslaught of potentially useful information. In anticipation of hardware and software solutions to these data problems, Peppers and Rogers (1993) introduced the concept of one-to-one marketing, and Pine (1993) introduced the concept of mass customization. Vendors capitalized on these ideas with hardware and software solutions and began using the term CRM to refer to the collection of data and activities surrounding the management of the customer–firm interface. These CRM solutions enabled firms to acquire, warehouse, and analyze data about customer behavior and company actions more easily. Using these data and analyses, firms began to focus on acquiring new customers; retaining their current customers (i.e., building long-term relationships); and enhancing these relationships through such activities as customized communications, cross-selling, and the segmentation of customers, depending on their value to the firm (Payne and Frow 2005). Implementation of these CRM solutions also required firms to have a customer relational orientation (Jayachandran et al. 2005; Srinivasan and Moorman 2005) and to have processes in place to collect, analyze, and apply the acquired customer information (Jayachandran et al. 2005).

Thus, the question is, What is new about CRM? On the basis of our preceding discussion, it could be argued that CRM is the relabeling of a mixture of different marketing ideas in the extant marketing literature. However, we believe that CRM represents an evolution beyond a repackaging of existing ideas. Specifically, we posit that CRM goes beyond extant literature because it "requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications" (Payne and Frow 2005, p. 168). Indeed, CRM goes beyond a customer focus. Not only does CRM build relationships and use systems to collect and analyze data, but it also includes the integration of all these activities across the firm, linking these activities to both firm and customer value, extending this integration along the value chain, and developing the capability of integrating these activities across the network of firms that collaborate to generate customer value, while creating shareholder value for the firm.

> P_2: The field of CRM has begun to converge on a common definition.

Payne and Frow (2005) document numerous definitions of CRM in the literature (see their Appendix). These definitions range from CRM as the implementation of specific technology solutions to a holistic approach of managing customer relationships that simultaneously creates both customer and firm value. This plethora of definitions has caused some confusion. Parvatiyar and Sheth (2001) note that a prerequisite for an emerging field to coalesce into an established field is for the discipline to establish an acceptable definition that captures all the major aspects of the concept. Payne and Frow attempt to provide such a definition. It is possible to quibble about the specific wording, but we agree with the basic elements of their definition. Specifically, CRM relates to strategy, the management of the dual creation of value, the intelligent use of data and technology, the acquisition of customer knowledge and the diffusion of this knowledge to the appropriate stakeholders, the development of appropriate (long-term) relationships with specific customers and/or customer groups, and the integration of processes across the many areas of the firm and across the network of firms that collaborate to generate customer value.

In addition to theoretical development, a prerequisite for the applied development of CRM is that it should demonstrably enhance firm performance. This is a necessary quality in the evaluation of any firm or marketing activity (e.g., Lehmann 2004; Rust et al. 2004). With this in mind, note that it is not necessarily a widely held belief that the implementation of CRM activities leads to firm value. To this end, consider the numerous articles that appear in the business press (e.g., Rigby, Reichheld, Schefter 2002; Whiting 2001). Nonetheless, we propose the following:

> P_3: Companies have developed proven CRM practices that enhance firm performance.

Eight of the ten articles in this special section directly address this proposition. These articles use different measures of performance in many different contexts, and they use various research methods. However, all eight articles demonstrate that CRM activities can enhance firm performance. For a field that has come under attack for not meeting this objective, we believe that this is a powerful result.

Using a case study approach, Ryals (2005) shows that one of the business units she studied was able to achieve a 270% increase in business unit profits (above target) by implementing several straightforward CRM measures. Using a multifirm (cross-sectional) database, Srinivasan and Moorman (2005) show that firms that invest more in CRM activities and technology have greater customer satisfaction. Using another multifirm database, Mithas, Krishnan, and Fornell (2005) show that the use of CRM applications is associated with increased customer knowledge, which in turn is associated with greater customer satisfaction. Using yet another multifirm database, Jayachandran and colleagues (2005) show that firm performance measured in terms of retention and customer satisfaction is greater for firms that have good relational information processes in place.

Cao and Gruca (2005), Lewis (2005), Thomas and Sullivan (2005), and Gustafsson, Johnson, and Roos (2005) all use data collected within a single firm over time. Cao and Gruca, Lewis, and Thomas and Sullivan use data from both the firm and its customers to develop specific CRM applications to increase the firm's performance. Cao and Gruca center their attention on acquiring the "right" customers; Lewis provides a process that identifies and considers dynamic customer behavior, thus enabling a pricing scheme that increases long-term profits; and Thomas and Sullivan develop a decision support system using an enterprise database that allows the firm to modify its communication message depending on where particular customers live and how they shop. In each case, the authors show how firm profits can be increased. Gustafsson, Johnson, and Roos (2005) examine customer behavior over time and show that some of the intermediate relationship performance measures that emerge from the business-to-business literature (e.g., satisfaction, calculative commitment) directly and positively influence actual behavior in the form of retention within a business-to-consumer setting.

We must emphasize four points here. First, the eight empirical articles in this special section demonstrate the positive impact of CRM in a wide variety of industry settings. Thus, success with CRM is not contingent on being a part of a particular industry (e.g., financial services). Second, we note that all of the application articles are narrow rather than comprehensive. Thus, they find local improvements in profits. We can only speculate about what could be accomplished with a more comprehensive systems approach; we also express some concern that local solutions can sometimes be suboptimal in the long run. Third, only Ryals's (2005) study directly measures both the costs and the revenues associated with the CRM activities to assess overall profits. Lewis (2005) and Cao and Gruca (2005) examine profits, but because of data unavailability, they must make assumptions about costs to generate these numbers. All the other studies use proxies for profits. Because several of the studies use customer satisfaction for their performance measure, it is of interest that Gustafsson, Johnson, and Roos (2005) show that customer satisfaction is negatively associated with observed customer churn, thus providing strong evidence that customer satisfaction is a useful precursor of downstream outcomes. However, it is important to note that this same research indicates that satisfaction is not the only predictor of downstream performance measures.

This leads to a fourth observation about CRM activities and firm performance. Payne and Frow (2005) emphasize that one major element in any CRM system is the measurement process. Although the ultimate objective of any measurement process is to increase shareholder value, one of the real advantages of a CRM measurement process is that the firm normally also obtains measures such as customer lifetime value and acquisition and retention costs, which relate to the value dual-creation process. Thus, good CRM process measures provide the firm with the opportunity to gain deeper insights into how these intermediate process measures link to downstream firm performance. Several articles in this issue show these links. Thus, we do not believe that every article must focus its attention on the most obvious downstream measures of performance (e.g., profits, shareholder value). However, it is clear that more work must be done to establish the links between the many process measures that come from CRM systems and these downstream measures as well as the implied return on different CRM investments. The work of Gupta, Lehmann, and Stuart (2004) offers an excellent first step in this direction. This area should be of particular interest to researchers who want to demonstrate the link between marketing activities and shareholder value (Srivastava, Shervani, and Fahey 1998). In general, CRM creates the potential for firms to begin to treat as firm investments what were previously considered marketing costs (Rust, Lemon, and Zeithaml 2004). Furthermore, this implies that marketing could regain a central role in managing a key asset of the firm, namely, the customer asset.

Finally, even though we consider Payne and Frow's (2005) article conceptual rather than empirical, we note its relevance to the CRM–performance link. In particular, this conceptual framework emerges as the "best practice" from interaction research with several firms. If a firm does not achieve the desired results from its CRM activities, it might compare its practices with the best practice template that Payne and Frow provide. This comparison could reveal gaps in how the firm implements CRM relative to best practices.

Having said this, we note that Payne and Frow's (2005) framework is largely silent about how a particular context or process might interact with another process to produce differential results from CRM activities. Although the articles published in this special section show that CRM activities lead to enhanced firm performance, they also reveal situations in which CRM activities have more or less positive effects on firm performance. This leads to our next proposition:

> P_4: Holding fixed the level of CRM investment, the effectiveness of CRM activities depends on how CRM is integrated with the firm's (a) existing processes and (b) preexisting capabilities.

We previously noted that CRM activities need to be integrated into the fabric of the overall operations of the firm. Because different firms have different core capabilities, it is not surprising that CRM activities have a differential effect depending on the context of where and when they are implemented. This is similar to what has been observed in the context of relationship management (e.g., Coviello et al. 2002). Specifically, Jayachandran and colleagues (2005) show that the positive effects of investments in CRM technology are enhanced when the firm already has the appropriate relational information processes in place. Srinivasan and Moorman (2005) show that for online retailers, the firm's strategic commitments in terms of prior bricks-and-mortar experience and online experience affect the impact of online CRM investments on the firm's performance. Notably, they also find a few cases in which increased investments in CRM are associated with negative returns in performance.

Likewise, Mithas, Krishnan, and Fornell (2005) show that CRM activity returns are enhanced when firms share information with their supply chain members. Furthermore, Thomas and Sullivan (2005) show that an enterprise CRM system that coordinates and integrates data from different channel sources enables the firm to gain new knowledge about each customer and thus enhance firm performance.

We expect that there are many other contexts in which CRM activities are either enhanced or reduced. We discuss this issue in more depth in some of the subsequent propositions. However, before doing so, we offer another proposition that may sound somewhat contradictory to the previous proposition:

> P_5: Effective CRM implementation does not necessarily require sophisticated analyses, concepts, or technology.

After reading numerous submissions for this issue, we were struck by the "simplicity" of the application articles. The articles used known methodologies (e.g., latent segmentation: Lewis 2005; Thomas and Sullivan 2005), relied on known conceptual issues (e.g., adverse selection in acquiring customers: Cao and Gruca 2005), and examined small pieces of the overall set of CRM activities (e.g., use of customer lifetime value: Ryals 2005) in studying the effects of CRM on performance.

Perhaps the most striking example of this is Ryals's (2005) contribution. From a research methodology standpoint, the case study approach is technically unsophisticated. Moreover, the CRM activities implemented in these case studies are simple and straightforward. The combination of these two attributes led one reviewer of this manuscript to conclude that an important implication of this article was that even simple CRM activities yield measurable benefits for a firm.

Another surprise gleaned from the application articles is the relevance of traditional market segmentation in the context of CRM activities. Some may equate CRM with the idea that every firm offer/activity should be customized for individual consumers. However, in all of the application articles, we observed the use of basic market segmentation (Cao and Gruca 2005; Lewis 2005; Ryals 2005; Thomas and Sullivan2005), and three of the articles identify only two segments. Admittedly, these segments were not based on standard demographics but rather on detailed analyses of prior observed behavior.

Only Ryals (2005), in one of her two case studies, shows an application in which the firm treated each customer individually, and here the firm had only ten major customers. Still, what we find most germane in considering the group of application articles published herein is that despite the simplicity in the approaches, each of these applications was able to show improvements in firm performance when the firm acted strategically in terms of using customer information to create firm value.

Jayachandran and colleagues (2005) reinforce the point about simplicity and CRM effectiveness The database they used in their analysis contained a significant number of firms that had yet to implement sophisticated CRM applications. Yet these researchers showed that as long as these firms had good relational processes in place, they were able to obtain good firm performance. Thus, although the effectiveness of CRM may vary depending on the specific context of these activities, consistent with P_4, it appears that the most important element of CRM implementation is for the firm to acquire customer knowledge and then use this knowledge wisely for the dual creation of value. This leads to our next proposition.

> P_6: The core of CRM is the concept of dual creation of value.

Payne and Frow's (2005) Figure 1 best demonstrates "proof" of this proposition; it shows the cocreation of value as the central element in their conceptual framework. We consider the labels "cocreation" and "dual creation" of value interchangeable, but we prefer "dual creation" given instances in which firms can create value for one customer through information drawn from other customers (e.g., Amazon) rather than direct collaboration. Jayachandran and colleagues (2005) provide a deeper description of this core idea with their delineation of five subprocesses that they refer to as relational information processes. We believe that their processes, which they label "information reciprocity," "information capture," "information integration," "information access," and "information use," directly relate to the dual creation of value.

The idea that dual creation of value is at the core of CRM is also evident in all the articles that examine the firm–customer interface. For example, Cao and Gruca (2005) provide a framework whereby the firm can better limit its target market to customers who both want to hear about the firm's particular offer and qualify for that offer. As a result, the firm does not send messages to customers who are unlikely to respond, thus minimizing the disturbance to these customers. Likewise, the firm does not send messages to customers who are unlikely to qualify for the offer, thus minimizing their disappointment. The authors note that this leads to an obvious win-win situation for the firm and its customers (i.e., the dual creation of value).

In contrast, Lewis (2005) develops a pricing scheme that creates a differential value proposition for different market segments. He notes that this raises the issue of fairness and trust because the goal is for the firm to use knowledge about customers to extract more value for the firm and therefore create less value for the customer. Similarly, Ryals (2005) shows that firms reduce their attention to customers/customer groups after they determine that they are not able to garner enough value from these groups. Thus, for certain customers, value is taken away so that firms can increase the value they receive. In a similar manner, Thomas and Sullivan (2005) examine the dual creation of value from the firm perspective. They propose a process that enables firms to migrate customers into more profitable channels. However, this article does not address the issue of whether this process creates additional customer value.

These latter studies bring to the forefront the concept of who gets the economic rents from the value creation process. Economic theory is silent on this issue, other than to maintain that neither party can be worse off. However, if CRM is implemented in a way that leads consumers to believe that they are worse off, firms can put themselves at substantial risk. Information reciprocity can break down, and consumers may ultimately choose to opt out of relationships. This leads us to consider the "dark side" of CRM or, more generally, the potential pitfalls and unknowns that firms should consider when implementing CRM activities.

Potential Pitfalls and Unknowns in CRM Implementation

In ideal circumstances, CRM and the dual creation of value expand the pie such that both consumers and firms are better off. However, the focus in CRM applications, as some of the articles in this special section demonstrate, can be on the creation of firm value. In these cases, CRM might be considered a pie-splitting mechanism, whereby the firm can learn things about customers that enable it to take a big slice of the created value. To rephrase this in economic terms, firms may use CRM activities to attempt to extract consumer surplus. This possibility makes Wright's (1986) concept of "schemer schema" relevant in the context of CRM activities. Given customers' intuitive theories about what firms are trying to do with CRM, how will customers modify their behavior? This question leads to our first proposition about firm issues in implementing CRM activities:

> P_7: The successful implementation of CRM requires that firms carefully consider issues of consumer trust and privacy.

Sometimes the firm can unobtrusively collect information about the customer at the time of the transaction. Other times, the firm must rely on the customer providing this information. It is in the firm's self-interest to collect these data; as both Mithas, Krishnan, and Fornell (2005) and Jayachandran and colleagues (2005) show, firms that acquire this knowledge are more likely to have superior firm performance. However, it may not always be in the customer's self-interest to provide these data. Lewis (2005) nicely illustrates Wright's (1986) notion of schemer schema. In this application, the firm infers customer types from observed prior behavior. However, Lewis shows that some customers anticipate what a firm will do after it observes customer behavior. This leads these customers to modify their own behavior. In other words, the consumers act strategically. If consumers act strategically, this reduces the firm's share of the value creation pie, even if the firm anticipates these reactions, though anticipation on the part of the firm will reduce this reduction in share of the value pie.

In Lewis's (2005) setting, only 5% of the customers are in the "strategic behavior" segment. However, as more consumers begin to consider that firms are using CRM to act strategically, an increasing number of customers become less trusting of firm behavior and therefore act strategically in repeated interactions with the firm. The real issue from the consumers' perspective is whether they trust that firms will use their data in a way that helps the consumer. Lewis cites some fairly prominent examples of firm behavior that may reduce customer trust in those firms (e.g., attempts by Coke and Amazon to extract consumer surplus). In today's Internet environment, there is a proliferation of spyware (and spyware blockers) that has led to a distrust of the Internet shopping environment and a desire for greater consumer privacy.

Deighton (2005) suggests that issues of consumer trust could significantly undermine CRM activities. In particular, if customers lose trust in firms and believe that their data are used by firms for purposes of exploiting them, consumers will attempt to keep their data private or to distort the data. This has led, and could continue to lead, to both individually based efforts to keep data private or collectively based efforts that lead to privacy regulations. This consumer protection is certainly reasonable and appropriate. Thus, firms should think with foresight about trust and privacy implications of their CRM activities, and researchers should continue to consider these issues (e.g., Bart et al. 2005). If the firm does not adequately consider the creation of value for both their customers and themselves, they may lose access to the data required for the dual creation of value process. Stated simply, firms should not be greedy.

> P_8: The successful implementation of CRM requires that firms carefully consider issues of consumer fairness.

The precursor to some of these trust issues is fairness: Do customers trust that firms will be fair in splitting the value creation pie? However, there is an additional perspective of fairness to consider. In particular, CRM activities create the potential for differential treatment of customers who interact with a firm. Reitz (2005) provides examples in which customers did not become upset by being treated differentially, even when they were on the same airline flight. However, Reitz also notes that customers have norms of what is fair and what is unfair in terms of differential treatment of customers and that it is easy for firms to cross over the line in terms of what customers consider unfair.

Feinberg, Krishna, and Zhang (2002) demonstrate the risk of crossing this line by means of differential treatment. They report that there is more switching (lower retention) for the focal customer if another customer, who is perceived to be similar to the focal customer, receives better treatment from the same firm. They find the same result for the focal customer if the similar customer receives better treatment from a competitive firm. This is similar to the result of Boulding and colleagues (1993), who find that based on what customers observe other customers receiving either from the same firm or from competitive firms, customers develop expectations about what they should receive and downgrade their perceptions of the firm if they receive less than what they believe they should. Likewise, using a regret theory framework, Inman, Dyer, and Jia (1997) emphasize the importance of forgone alternatives in terms of the valuation of the chosen alternative and future purchase decisions. Both Srinivasan and Moorman's (2005) and Gustafsson, Johnson, and Roos's (2005) articles show results that are consistent with this prior research. They find that what customers experience, both within a particular firm and compared with other firms, drives what they believe they should receive or what they believe is fair and, thus, affects the firm's performance.

We believe that much is still unknown about the standards customers use to determine whether the firm is acting fairly and the connection between perceived fairness and trust. Thus, we hope that researchers continue to examine these standards (e.g., Mazumdar, Raj, and Sina 2005). Because these issues are intimately connected with customers' willingness to provide data and their satisfaction with the firm relationship, firms must take great care in monitoring and managing customer perceptions of trust and fairness.

> P_9: Inappropriate and incomplete use of CRM metrics can put the firm at risk of developing core rigidities, thus leading to long-term failure.

According to Payne and Frow (2005), one of the key components of CRM is a good measurement process. However, most of the most popular measures of current CRM systems (e.g., acquisition, retention, cross-selling, upselling, customer migration, customer lifetime value) are outcome measures. These outcome measures are important and necessary. However, they may not be directly linked to the value dual-creation process, and as we previously noted, this is the core concept of CRM. Thus, it is essential that the firm also develops measures that are directly connected with this value dual-creation process, enabling the firm to understand the drivers of value and thus to ensure long-term success. The flip side of this is that failing to do so can lead to doing too much of a "good" thing, producing core rigidities (Atuahene-Gima 2005; Leonard-Barton 1992) and long-term failure.

A few examples may be useful to illustrate this point. An early insight in the development of CRM was the importance of customer retention. Indeed, it can be shown that lifetime value calculations are more sensitive to improvements in customer retention than customer acquisition (Heskett et al. 1994). Fuller (2005) describes the implications of this connection between lifetime value and retention at L.L.Bean, which focused on retention at the expense of acquisition activities. The consequence of this focus was short-term gains in profitability but, unfortunately, at the expense of new customer acquisition and a reduction in the long-term value of the firm. Subsequently, L.L.Bean adjusted the balance between acquisition and retention activities.

This example brings the importance of customer portfolio management to the forefront (Johnson and Selnes 2004). Thinking about balancing the customer portfolio in terms of customer needs, implied firm actions to create customer value, and how these customers create company value leads us to ponder one of the recommendations in the bank case study that Ryals (2005) reports. On the basis of lifetime value calculations, the bank decided to stop targeting younger, less profitable loan customers. This decision is potentially based on incomplete use of metrics in two different ways. First, it could be that the younger, less profitable customers evolve over time into older, more profitable customers. The lifetime value metric needs to be complete in the sense of capturing this potential dynamism in customer value (Du 2005). Second, it could be that dropping these smaller, less profitable customers undermines the economies of scale that enable the firm to generate profits from larger customers, as was the case for a large European financial services company (Johnson and Selnes 2005). In this case, the lifetime value metric needs to be complete in terms of considering potential externalities across customer groups. This requires the firm to allocate the costs associated with providing customer value accurately.

Another example to illustrate this proposition is what took place over several years at Xerox. Xerox was an early leader in customer satisfaction and one of the first winners of the Baldridge Award. It created excellent information systems to collect and diffuse detailed customer metrics to relevant parts of the organization, which resulted in increases in customer satisfaction and firm value. However, many of these systems focused on measuring customer satisfaction with existing products and services. It is possible that, over time, these measurement processes, which had been a source of strength for Xerox, became core rigidities, ultimately leading to subpar performance for the company. If key CRM metrics do not directly assess the value dual-creation process, there is a risk that the underlying value proposition that generates outcome metrics, such as satisfaction, retention, acquisition, and lifetime value, can slowly degrade.

Thus, although CRM enables the firm to obtain a large number of measures, it is important that at least some of these measures connect to the current and future value creation process. This should enhance the firm's innovation activities and, in general, keep the firm competitive over time. It also raises an interesting research question: What is the relationship between the level of the firm's CRM activities and its level of innovation?

> P_{10}: Successful implementation of CRM requires that firms incorporate knowledge about competition and competitive reaction into CRM processes.

It is well accepted that CRM is a strategic initiative. As such, it should be held accountable to the same standard as the evaluation of other strategic choices that a firm faces (Boulding and Staelin 1995). Does CRM provide sustainable advantage for the firm in the face of competitive reaction? A standard issue in the assessment of returns to strategic choices is that if generalizations exist about strategic relationships, firms can be expected to compete away the advantages implied by these relationships (Wensley 1982). This issue is especially salient given that P_3 suggests that companies have developed proven CRM practices that enhance firm performance.

We find it surprising that the CRM literature and the articles in this special section are largely silent on this issue of competitive reaction. We note that Payne and Frow's (2005) five elements of CRM do not explicitly reflect competition, and none of the empirical articles directly considers the role of competition. We find this omission in the CRM literature especially surprising given that the evolution of CRM can be traced back to the market orientation literature. In this literature, there is a discussion of whether firms should be customer focused or competitor focused, and the conclusion is that firms should be market focused; that is, firms should focus on competitors, customers, and company capabilities (Kohli and Jaworski 1990). Thus, in addition to addressing the issue of sustainability in the face of competitive reaction, we can ask a more general question: How is competitor focus integrated into CRM?

We believe that a failure to integrate competition into a firm's CRM activities potentially puts it at serious risk. The biggest risk is related to the previous proposition (i.e., the destruction of the dual creation of value due to innovation from competition). For example, when innovation enables document copies to be made through distributed desktop printing rather than centralized copying, what does this imply for the dual creation of value for Hewlett-Packard and Xerox, respectively?

In summary, we believe that research is necessary in this area on two dimensions: First, work must be done that shows how to integrate competition into the processes underlying CRM. Second, work must be done that considers the conditions in which CRM yields sustainable advantage in the face of competitive reaction. With regard to this latter issue, it is difficult to imagine how the technology underlying CRM could create such an advantage. However, the relational information processes, the customer knowledge generated from these processes, the integration of processes, and the customer loyalty resulting from the value creation processes may be difficult to imitate.

> P_{11}: Effective CRM implementation requires coordination of channels, technologies, customers, and employees.

Again, an interesting aspect of this special section is what is not included. Little attention is given to the role of employees in the implementation of effective CRM activities. In discussing how Continental Airlines went from worst to first in customer satisfaction, Reitz (2005) stresses the importance of firms having people issues under control before investing in expensive CRM technologies. The articles in this issue that come closest to addressing the role of people in CRM are those of Jayachandran and colleagues (2005) and Srinivasan and Moorman (2005). Jayachandran and colleagues detail the processes that are needed to collect, use, and analyze customer data effectively, but they only hint at how to ensure that employees use these processes. Srinivasan and Moorman measure employee involvement in the collection and dissemination of customer data and show that this involvement is positively associated with good firm performance. However, they also do not provide insights into how to ensure that people in firms exhibit this behavior. Thomas and Sullivan (2005) demonstrate the potential value of enterprise systems that integrate customer information across channels. However, they do not indicate how to bundle these enterprise systems with people processes. For example, it would be nice for the catalog customer service representatives to have access to customers' shopping activities across all company channels.

Because employees are an integral part of the delivery of CRM activities, we believe that the organizational issues relevant to CRM are a critical area that deserves a firm's attention. Data and technology processes and systems are critical for CRM activities, but without appropriate human interaction with these processes and systems, the returns on investments in these areas are at risk. Vorhies and Morgan (2005) make a similar point in noting the interdependence of marketing capabilities. Because little is known about how people issues connect to the success of CRM activities, we believe that this is an area worthy of researcher attention. A good starting point might be the services marketing literature. This literature recognizes that services lie at the intersection of marketing, human resources, and operations. We refer the reader to the work of Zeithaml, Bitner, and Wilson (2000) for an extensive discussion of this literature.

Finally, related to the previous proposition, we also note that the integration of CRM across both people and processes may be difficult to imitate and thus provide a source of sustainable competitive advantage. Thus, we hope that others will provide deeper insights into the conditions needed to integrate people into CRM activities successfully.

Method Issues for Further CRM Research

On the basis of our discussion of the previous propositions, it is clear that there are additional substantive unknowns pertaining to the implementation of CRM and the understanding of the effects of CRM activities. We now turn to more general methodological considerations. We provide six recommendations that we believe are important for scholars interested in pursuing research in the field of CRM.

> R_1: CRM research should focus on the interaction among subprocesses or the interaction among processes, not total CRM systems.

We previously noted that CRM entails the integration of numerous processes; takes place across multiple areas of the value chain; and involves the confluence of technologies, data, and people. We believe that CRM is too complex and integrative to expect any one study to model all these aspects of CRM empirically. Thus, we expect that researchers will follow the lead of the eight empirical articles in this special issue and focus on specific areas within CRM, searching for insights pertaining to how particular processes or subprocesses behave and/or interact. However, we note an inherent tension in doing this. Researchers must remember that other parts of the CRM process may modify their relationships of interest. This will require researchers to either model these effects or control for them. In the following recommendations, we focus on specific methodological issues that investigators should take into account when conducting CRM research.

> R_2: CRM research should have the appropriate measures available for the desired insights.

Most studies on CRM are involved in one way or another with firm performance. We previously noted that the articles in this special issue use several different firm performance measures. Ryals (2005) and Cao and Gruca (2005) use profit. Lewis (2005) uses revenues. Gustafsson, Johnson, and Roos (2005) use retention, and Srinivasan and Moorman (2005) and Mithas, Krishnan, and Fornell (2005) use satisfaction. Jayachandran and colleagues (2005) use a combination of retention and satisfaction. Ultimately, CRM is about linking firm actions to the many stakeholders' values. One of the major stakeholders of relevance to CRM is the firm owners (i.e., the shareholders). A key objective for these stakeholders is profit maximization. Thus, we hope that researchers obtain cost data whenever possible, thereby enabling them to assess profits. This may require them to address the allocation of costs directly across different business units or customers groups, as Ryals (2005) does at both the customer and the segment levels. Beyond this, we hope that further work directly examines the link between CRM activities and shareholder value.

A second key stakeholder of relevance to CRM is the customer. A key objective for customers is utility/value maximization. Here, there is a great deal of research that examines how CRM connects to this objective, using the proxy of customer satisfaction. However, we reiterate our previously stated belief that more work could be done that examines how CRM affects measures of the value creation process rather than value creation outcomes. In other words, how does CRM connect to innovation and constant renewal of value creation for customers?

Other stakeholders of relevance to CRM include employees, suppliers, and collaborators. Given the integrative nature of CRM, we hope that further research explores how measures of relevance to these different stakeholders are related to CRM activities. We expect that these measures are present in a variety of other literature streams (e.g., strategy, supply chain management, organizational behavior and design).

In addition, the CRM environment provides a rich setting to test the relationship between and among various measures. Thus, Gustafsson, Johnson, and Roos (2005) examine the uniqueness of constructs that tap satisfaction, affective commitment, and calculative commitment as they are related to retention. This work emphasizes the issue that though constructs relevant to CRM may be conceptually distinct, their effects may be empirically indistinguishable, as is found with the satisfaction and affective commitment constructs. This finding suggests that careful attention to measurement issues is required when testing subtle theoretical effects relevant to the CRM domain.

> R_3: Research should provide conclusive evidence with respect to the causal effects of CRM activities.

Most CRM researchers are interested in assessing causality. One research strategy commonly found in the study of CRM (among other fields) is to obtain responses for several firms and then determine whether there is a tendency for firms of a particular type to display different behavior than firms of another type. Often, the researcher obtains these data by asking respondents to fill out a survey. It has long been known that if both the dependent variables and the independent variables come from the same respondent, it is likely that at least part of any association between these variables is due to common method bias. A way to avoid this bias is to use two different sources, one for the independent variables and one for the dependent variables. Two of the articles using cross-sectional data in this issue (i.e., Mithas, Krishnan, and Fornell 2005; Srinivasan and Moorman 2005) use this approach. The other article in this issue that uses cross-sectional data (Jayachandran et al. 2005) relies on survey data collected from only one source within a firm. However, Jayachandran and colleagues' interests center on the effects of an interaction term, something that could not be explained by common method bias. Moreover, they present theory that predicts the form of this interaction. Thus, we can be more confident in their interpretation of the findings.

Causality is difficult to determine if the only data available are cross-sectional. The obtained results are associational and subject to interpretations of reverse causality. Thus, it is highly desirable to have temporal separation between the independent and the dependent variables, as is shown by Mithas, Krishnan, and Fornell (2005), Srinivasan and Moorman (2005), and Gustafsson, Johnson, and Roos (2005).

In general, we note the relevance of longitudinal data or cross-sectional/longitudinal data for CRM research. This is especially true given policy changes that CRM research suggests. For example, Ryals (2005) shows an increase in business unit profits due to CRM, but she cannot document the validity of lifetime value estimates based on data from a single point in time. Therefore, Ryals must make assumptions about long-term profitability implications. Likewise, Thomas and Sullivan (2005) do not document before and after behavior, given a change in communication strategy that leads to channel migration. Instead, they must assume that model estimates made from a certain point in time continue to hold; that is, when customers migrate to a new channel, they assume the shopping behaviors of those already in that channel. We note that Lewis (2005) also does not conduct a longitudinal study. However, he is better able to assert what would happen if the firm takes a proposed action because his model reflects the interaction of the different players and is based on an underlying utility formulation. This enables him to make forward-looking policy statements that imply causality.

We believe that if the field is to advance, more emphasis must be placed on documenting causality. Further research should also reflect that most firm–customer interactions are dynamic and time varying. As such, CRM systems should help provide data for this research, because a key element of these systems is the collection over time of data that document critical aspects of the process. Perhaps the major issue for academic researchers who are interested in assessing causal relationships within CRM involves accessing these data along with the cooperation of firms.

> R_4: Research should acknowledge that firms do not choose CRM activities in the abstract; instead, they choose these activities on the basis of market response to these activities along with other factors, such as particular firm skills and capabilities.

Customer relationship management activities are not static. Firms and customers choose (and change) their behavior on the basis of others' actions to maximize value. Ryals (2005) shows how managers modified their behavior toward individual customers after being given access to measures of customer lifetime value. Lewis (2005) documents how customers act strategically to alter their behavior depending on the actions of the firm and that firms can alter their behavior on the basis of consumer behavior. Thomas and Sullivan (2005) show how firms can modify customers' channel choice through different communication strategies. Payne and Frow (2005) emphasize the dual creation of value between customer and firm. In all these cases, the actions of one player are chosen because of or depend on the actions of other players. In addition, Jayachandran and colleagues' (2005), Srinivasan and Moorman's (2005), and Mithas, Krishnan, and Fornell's (2005) research implies that firms should perhaps choose their CRM decisions on the basis of existing resources and capabilities.

All of this provides strong evidence that CRM activities should be considered choice variables and thus treated as endogenous in empirical models. As is well known from the strategy literature, if this is not taken into account, the result may be biased estimates of the effects of CRM activities on performance. This is because unobserved determinants of these CRM choices may also be correlated with the dependent measure of interest in the research. Thus, we hope that further CRM research uses structural modeling and estimation approaches that address this issue.

We note that this concern about endogeneity is also connected to our recommendation for increased use of longitudinal or cross-sectional/longitudinal data for CRM research. Correcting for the possibility of endogeneity bias is difficult when there is only access to cross-sectional data (Boulding and Staelin 1995). Given this limitation, we find that Mithas, Krishnan, and Fornell's (2005) approach is quite creative. Because they rely on a cross-sectional database, they cannot control for the issue of endogeneity bias. However, they present sensitivity analysis that indicates the degree to which the estimate of their theoretical effect of interest changes as a function of the (unknown) correlation of unobserved factors with the independent variable of interest. Thus, although their reported estimate is not necessarily free from bias, the reader can assess the stability of this result in the face of potential bias from unobserved factors.

> R_5: CRM research should suitably address potential heterogeneity in customer behavior.

An underlying premise of CRM is that customers have different needs, and thus the firm should treat them differently. By definition, this implies that researchers need to acknowledge heterogeneity in customer behavior. Given the extensive focus on heterogeneity issues in the field of marketing, there are several approaches that researchers can take to address this issue. Lewis (2005) and Thomas and Sullivan (2005) do this by constructing latent class segmentation schemes (Kamakura and Russell 1989) and then estimating different response coefficients for each segment. Cao and Gruca (2005) take a different approach by controlling for heterogeneity through observable differences in their customers. Gustafsson, Johnson, and Roos (2005) also control for heterogeneity through observable customer differences by constructing an individual-level variable that, in effect, segments customers in terms of current churn behavior based on past churn behavior. This approach is reminiscent of what Guadagni and Little (1983) did in the context of brand choice. Another approach, which none of the articles in this special issue uses, is to use Bayesian estimation (Allenby and Rossi 1999), which, at least conceptually, enables every person to have his or her own response coefficients. However, the bottom line is that CRM rests on the notion that customers may differ. Researchers need to acknowledge this potential diversity whenever they analyze customer response to firm actions.

> R_6: The research results should generalize rather than be idiosyncratic to the chosen research domain.

A major feature of high-impact academic research is that the findings, concepts, and ideas that result from the research can be applied to a broad set of environments and/or domains. There are two basic approaches that a researcher can take to achieve such a goal for CRM research. The first approach is to base the research analysis on a wide range of firms (i.e., use cross-sectional analysis). Although this enables the researcher to address the issue of generalizability directly, it opens up the issue of being able to control for many environmental factors that could affect the dependent variable of interest along with the independent variables that vary across firms. One standard approach that researchers who conduct cross-sectional analyses use is to include variables that control for these differing environmental factors in their analyses. This is the approach that Srinivasan and Moorman (2005), Mithas, Krishnan, and Fornell (2005), and Jayachandran and colleagues (2005) use.

A key issue is not whether a cross-sectional analysis has adequate control variables but whether the researcher can claim that he or she has included all relevant environmental variables. Obtaining good measures for all potentially relevant environmental measures is often difficult if not impossible. Unfortunately, if one or more of the omitted environmental variables correlate with both the independent variable of theoretical interest and the dependent measure, the obtained result is biased. A way to circumvent this issue is for the researcher to obtain multiple observations on each firm (i.e., obtain a longitudinal, cross-sectional database). This enables the researcher to hold fixed the environmental factors that are unique to each firm by conducting both within- and between-firm analyses (see Boulding and Staelin 1995).

A second approach is to conduct a series of within-firm analyses over time and then look for commonalities among these studies. Here, the emphasis is on determining changes over time. Two examples of within-firm analyses over time in this special issue are those of Ryals (2005), who studies how managers modify their behavior over time in response to relevant CRM metrics, and Gustafsson, Johnson, and Roos (2005), who study how consumers change their behavior over time as a function of their prior behavior, satisfaction, and calculative commitment to the firm. When several of these single-firm analyses have been conducted, the researcher(s) can then perform a meta-analysis and look for generalized principles. In a way, this is what we tried to do by examining the ten articles in this special issue and then coming up with our propositions.

Conclusion

The field of CRM has matured over the past decade. We share Rogers's (2005) sense of excitement over this CRM maturation process. Much progress has been made, as witnessed by the number of academic centers, conferences, research papers, courses, and industry attention devoted to this topic. However, as does Rogers, we note that many unanswered questions remain to be addressed.

One question frequently asked is, What is next after CRM? Given our assertion that CRM is the outcome of the continuing evolution and integration of marketing ideas and newly available data, technologies, and organizational forms, we do not forecast a discontinuous leap after CRM. Rather, we predict a continued evolution in CRM as new ideas, technologies, and so forth, are integrated into CRM activities. We hope that this article and the other articles in this special section provide the catalyst for other researchers to continue to move the theory and practice of CRM forward in this evolutionary process.

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Adrian Payne & Pennie Frow

A Strategic Framework for Customer Relationship Management

In this article, the authors develop a conceptual framework for customer relationship management (CRM) that helps broaden the understanding of CRM and its role in enhancing customer value and, as a result, shareholder value. The authors explore definitional aspects of CRM, and they identify three alternative perspectives of CRM. The authors emphasize the need for a cross-functional, process-oriented approach that positions CRM at a strategic level. They identify five key cross-functional CRM processes: a strategy development process, a value creation process, a multichannel integration process, an information management process, and a performance assessment process. They develop a new conceptual framework based on these processes and explore the role and function of each element in the framework. The synthesis of the diverse concepts within the literature on CRM and relationship marketing into a single, process-based framework should provide deeper insight into achieving success with CRM strategy and implementation.

Over the past decade, there has been an explosion of interest in customer relationship management (CRM) by both academics and executives. However, despite an increasing amount of published material, most of which is practitioner oriented, there remains a lack of agreement about what CRM is and how CRM strategy should be developed. The purpose of this article is to develop a process-oriented conceptual framework that positions CRM at a strategic level by identifying the key cross-functional processes involved in the development of CRM strategy. More specifically, the aims of this article are

- To identify alternative perspectives of CRM,
- To emphasize the importance of a strategic approach to CRM within a holistic organizational context,
- To propose five key generic cross-functional processes that organizations can use to develop and deliver an effective CRM strategy, and
- To develop a process-based conceptual framework for CRM strategy development and to review the role and components of each process.

We organize this article in three main parts. First, we explore the role of CRM and identify three alternative perspectives of CRM. Second, we consider the need for a cross-functional process-based approach to CRM. We develop criteria for process selection and identify five key CRM processes. Third, we propose a strategic conceptual framework that is constructed of these five processes and examine the components of each process.

The development of this framework is a response to a challenge by Reinartz, Krafft, and Hoyer (2004), who criticize the severe lack of CRM research that takes a broader, more strategic focus. The article does not explore people issues related to CRM implementation. Customer relationship management can fail when a limited number of employees are committed to the initiative; thus, employee engagement and change management are essential issues in CRM implementation. In our discussion, we emphasize such implementation and people issues as a priority area for further research.

CRM Perspectives and Definition

The term "customer relationship management" emerged in the information technology (IT) vendor community and practitioner community in the mid-1990s. It is often used to describe technology-based customer solutions, such as sales force automation (SFA). In the academic community, the terms "relationship marketing" and CRM are often used interchangeably (Parvatiyar and Sheth 2001). However, CRM is more commonly used in the context of technology solutions and has been described as "information-enabled relationship marketing" (Ryals and Payne 2001, p. 3). Zablah, Beuenger, and Johnston (2003, p. 116) suggest that CRM is "a philosophically-related offspring to relationship marketing which is for the most part neglected in the literature," and they conclude that "further exploration of CRM and its related phenomena is not only warranted but also desperately needed."

A significant problem that many organizations deciding to adopt CRM face stems from the great deal of confusion about what constitutes CRM. In interviews with executives, which formed part of our research process (we describe this process subsequently), we found a wide range of views about what CRM means. To some, it meant direct mail, a loyalty card scheme, or a database, whereas others envisioned it as a help desk or a call center. Some said that it was about populating a data warehouse or undertaking data mining; others considered CRM an e-commerce solution, such as the use of a personalization engine on the Internet

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or a relational database for SFA. This lack of a widely accepted and appropriate definition of CRM can contribute to the failure of a CRM project when an organization views CRM from a limited technology perspective or undertakes CRM on a fragmented basis.

The definitions and descriptions of CRM that different authors and authorities use vary considerably, signifying a variety of CRM viewpoints. To identify alternative perspectives of CRM, we considered definitions and descriptions of CRM from a range of sources, which we summarize in the Appendix. We excluded other, similar definitions from this list.

An important aspect of the CRM definition that we wanted to examine was its association with technology. This is important because CRM technology is often incorrectly equated with CRM (Reinartz, Krafft, and Hoyer 2004), and a key reason for CRM failure is viewing CRM as a technology initiative (Kale 2004). For this reason, we review the definitions in the Appendix with special attention to their emphasis on technology. This review suggests that CRM can be defined from at least three perspectives: narrowly and tactically as a particular technology solution, wide-ranging technology, and customer centric. These perspectives can be portrayed as a continuum (see Figure 1).

One organization we interviewed, which spent more than $30 million on IT solutions and systems integration, described CRM solely in terms of its SFA project. At this extreme, CRM is defined narrowly and tactically as a particular technology solution (e.g., Khanna 2001). We call this CRM "Perspective 1." Other definitions, such as that of Kutner and Cripps (1997), though somewhat broader, also fall into this category.

In another organization that we interviewed, the term CRM was used to refer to a wide range of customer-oriented IT and Internet solutions, reflecting Stone and Woodcock's (2001) definition. This represented CRM "Perspective 2," a point near the middle of the continuum.

"Perspective 3" reflects a more strategic and holistic approach to CRM that emphasizes the selective management of customer relationships to create shareholder value. This reflects elements of several previously noted definitions of CRM, including those of Buttle (2001), Glazer (1997), Singh and Agrawal (2003), and Swift (2000). Following this phase of our work, we identified Zablah, Beuenger, and Johnston's (2003) research, which supported our view of these perspectives.

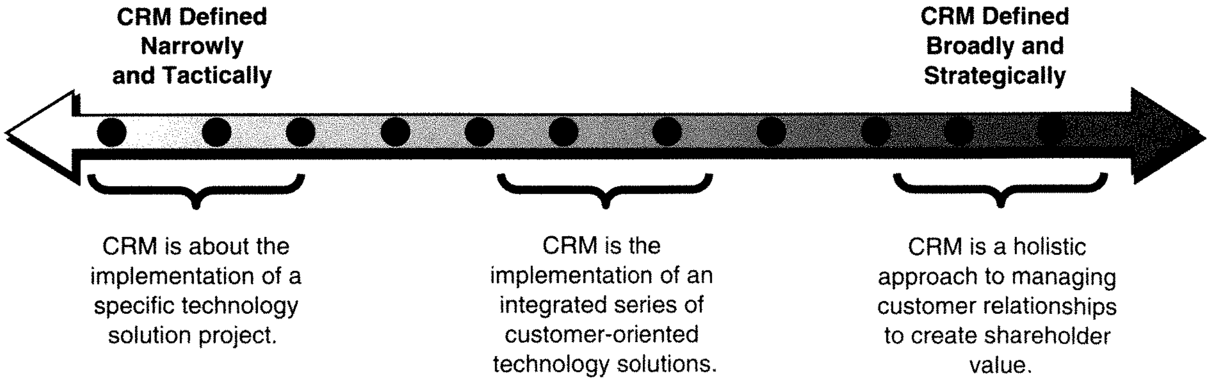
The importance of how CRM is defined is not merely semantic. Its definition significantly affects the way an entire organization accepts and practices CRM. From a strategic viewpoint, CRM is not simply an IT solution that is used to acquire and grow a customer base; it involves a profound synthesis of strategic vision; a corporate understanding of the nature of customer value in a multichannel environment; the utilization of the appropriate information management and CRM applications; and high-quality operations, fulfillment, and service. Thus, we propose that in any organization, CRM should be positioned in the broad strategic context of Perspective 3.

Swift (2000) argues, and we concur, that organizations will benefit from adopting a relevant strategic CRM definition for their firm and ensuring its consistent use throughout their organization. Thus, we developed a definition of CRM that reflected Perspective 3. We examined the CRM literature, synthesized aspects of the various definitions into a draft definition, and then tested it with practicing managers. As our research progressed, we went through several iterations. The result is the following definition, which we use for the purposes of this study:

> CRM is a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments. CRM unites the potential of relationship marketing strategies and IT to create profitable, long-term relationships with customers and other key stakeholders. CRM provides enhanced opportunities to use data and information to both understand customers and cocreate value with them. This requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications.

This definition provided guidance for our subsequent research considerations and the strategic and cross-functional emphasis of the conceptual framework we developed.

FIGURE 1
The CRM Continuum


CRM Defined Narrowly and Tactically
CRM Defined Broadly and Strategically
CRM is about the implementation of a specific technology solution project.
CRM is the implementation of an integrated series of customer-oriented technology solutions.
CRM is a holistic approach to managing customer relationships to create shareholder value.

Processes: A Strategic Perspective

Gartner (2001) calls for a fresh approach to business processes in CRM that involves both rethinking how these processes appear to the customer and reengineering them to be more customer centric. Kale (2004) supports this view and argues that a critical aspect of CRM involves identifying all strategic processes that take place between an enterprise and its customers. To address this challenge of adopting a fresh approach to CRM processes, we aimed to identify the key generic processes relevant to CRM.

We examined the literature to identify appropriate criteria for process selection but found little work in this area, with the exception of the contribution by Srivastava, Shervani, and Fahey (1999), who establish four process selection criteria for marketing and business processes. We chose their work as a starting point for the identification of process selection criteria for CRM. The criteria these authors propose are as follows: First, the processes should comprise a small set that addresses tasks critical to the achievement of an organization's goals. Second, each process should contribute to the value creation process. Third, each process should be at a strategic or macro level. Fourth, the processes need to manifest clear interrelationships.

As part of our research, we conducted a workshop with a panel of 34 highly experienced CRM practitioners, all of whom had extensive experience in the CRM and IT sectors. The director of a leading research and management institute specializing in the CRM and IT sectors selected the panel. Participants were selected on the basis of the following attributes to ensure that they were knowledgeable about CRM, its implementation, and its operation: substantial management and industrial experience (average of 17.2 years), maturity (average age of 40.2 years), international representation and international experience (managers from nine countries attended; most of them had international experience), and academic qualifications (degree or equivalent). In the first part of the workshop, which involved small group sessions, the panel reviewed and subsequently unanimously agreed that these four criteria were fully appropriate for selecting CRM processes. However, they also proposed two further criteria: First, each process should be cross-functional in nature, and second, each process would be considered by experienced practitioners as being both logical and beneficial to understanding and developing strategic CRM activities. We used these six criteria to select key generic CRM processes.

A Conceptual Framework for CRM

Grabner-Kraeuter and Moedritscher (2002) suggest that the absence of a strategic framework for CRM from which to define success is one reason for the disappointing results of many CRM initiatives. This view was supported both by the senior executives we interviewed during our research and by Gartner's (2001) research. Our next challenges were to identify key generic CRM processes using the previously described selection criteria and to develop them into a conceptual framework for CRM strategy development.

Our literature review found that few CRM frameworks exist; those that did were not based on a process-oriented cross-functional conceptualization of CRM. For example, Sue and Morin (2001, p. 6) outline a framework for CRM based on initiatives, expected results, and contributions, but this is not process based, and "many initiatives are not explicitly identified in the framework." Winer (2001, p. 91) develops a "basic model, which contains a set of 7 basic components: a database of customer activity; analyses of the database; given the analyses, decisions about which customers to target; tools for targeting the customers; how to build relationships with the targeted customers; privacy issues; and metrics for measuring the success of the CRM program." Again, this model, though useful, is not a cross-functional process-based conceptualization. This gap in the literature suggests that there is a need for a new systematic process-based CRM strategy framework. Synthesis of the diverse concepts in the literature on CRM and relationship marketing into a single, process-based framework should provide practical insights to help companies achieve greater success with CRM strategy development and implementation.

Interaction Research

Conceptual frameworks and theory are typically based on combining previous literature, common sense, and experience (Eisenhardt 1989). In this research, we integrated a synthesis of the literature with learning from field-based interactions with executives to develop and refine the CRM strategy framework. In this approach, we used what Gummesson (2002a) terms "interaction research." This form of research originates from his view that "interaction and communication play a crucial role" in the stages of research and that testing concepts, ideas, and results through interaction with different target groups is "an integral part of the whole research process" (p. 345). The sources for these field-based insights, which include executives primarily from large enterprises in the business-to-business and business-to-consumer sectors, included the following:

- An expert panel of 34 highly experienced executives;
- Interviews with 20 executives working in CRM, marketing, and IT roles in companies in the financial services sector;
- Interviews with six executives from large CRM vendors and with five executives from three CRM and strategy consultancies;
- Individual and group discussions with CRM, marketing, and IT managers at workshops with 18 CRM vendors, analysts, and their clients, including Accenture, Baan, BroadVision, Chordiant, EDS, E.piphany, Hewlett-Packard, IBM, Gartner, NCR Teradata, Peoplesoft, Oracle, SAP, SAS Institute, Siebel, Sybase, and Unisys;
- Piloting the framework as a planning tool in the financial services and automotive sectors; and
- Using the framework as a planning tool in two companies: global telecommunications and global logistics. Six workshops were held in each company.

Process Identification and the CRM Framework

We began by identifying possible generic CRM processes from the CRM and related business literature. We then discussed these tentative processes interactively with the groups of executives. The outcome of this work was a short list of seven processes. We then used the expert panel of experienced CRM executives who had assisted in the development of the process selection schema to nominate the CRM processes that they considered important and to agree on those that were the most relevant and generic. After an initial group workshop, each panel member independently completed a list representing his or her view of the key generic processes that met the six previously agreed-on process criteria. The data were fed back to this group, and a detailed discussion followed to help confirm our understanding of the process categories.

As a result of this interactive method, five CRM processes that met the selection criteria were identified; all five were agreed on as important generic processes by more than two-thirds of the group in the first iteration. Subsequently, we received strong confirmation of these as key generic CRM processes by several of the other groups of managers. The resultant five generic processes were (1) the strategy development process, (2) the value creation process, (3) the multichannel integration process, (4) the information management process, and (5) the performance assessment process.

We then incorporated these five key generic CRM processes into a preliminary conceptual framework. This initial framework and the development of subsequent versions were both informed by and further refined by our interactions with two primary executive groups: mangers from the previously noted companies and executives from three CRM consulting firms. Participants at several academic conferences on CRM and relationship marketing also assisted with comments and criticisms of previous versions. With evolving versions of the framework, we combined a synthesis of relevant literature with field-based interactions involving the groups. The framework went through a considerable number of major iterations and minor revisions; the final version appears in Figure 2.

This conceptual framework illustrates the interactive set of strategic processes that commences with a detailed review of an organization's strategy (the strategy development process) and concludes with an improvement in business results and increased share value (the performance assessment process). The concept that competitive advantage stems from the creation of value for the customer and for the business and associated cocreation activities (the value creation process) is well developed in the marketing literature. For large companies, CRM activity will involve collecting and intelligently using customer and other relevant data (the information process) to build a consistently superior customer experience and enduring customer relationships (the multichannel integration process). The iterative nature of CRM strategy development is highlighted by the arrows between the processes in both directions in Figure 2; they represent interaction and feedback loops between the different processes. The circular arrows in the value creation process reflect the cocreation process. We now examine the key components we identified in each process. As with our prior work, we used the interaction research method in the identification of these process components.

Strategy Development Process

This process requires a dual focus on the organization's business strategy and its customer strategy. How well the two interrelate fundamentally affects the success of its CRM strategy.

Business Strategy

The business strategy must be considered first to determine how the customer strategy should be developed and how it should evolve over time. The business strategy process can commence with a review or articulation of a company's vision, especially as it relates to CRM (e.g., Davidson 2002). Next, the industry and competitive environment should be reviewed. Traditional industry analysis (e.g., Porter 1980) should be augmented by more contemporary approaches (e.g., Christensen 2001; Slater and Olson 2002) to include co-opetition (Brandenburger and Nalebuff 1997), networks and deeper environmental analysis (Achrol 1997), and the impact of disruptive technologies (Christensen and Overdorf 2000).

Customer Strategy

Whereas business strategy is usually the responsibility of the chief executive officer, the board, and the strategy director, customer strategy is typically the responsibility of the marketing department. Although CRM requires a cross-functional approach, it is often vested in functionally based roles, including IT and marketing. When different departments are involved in the two areas of strategy development, special emphasis should be placed on the alignment and integration of business strategy.

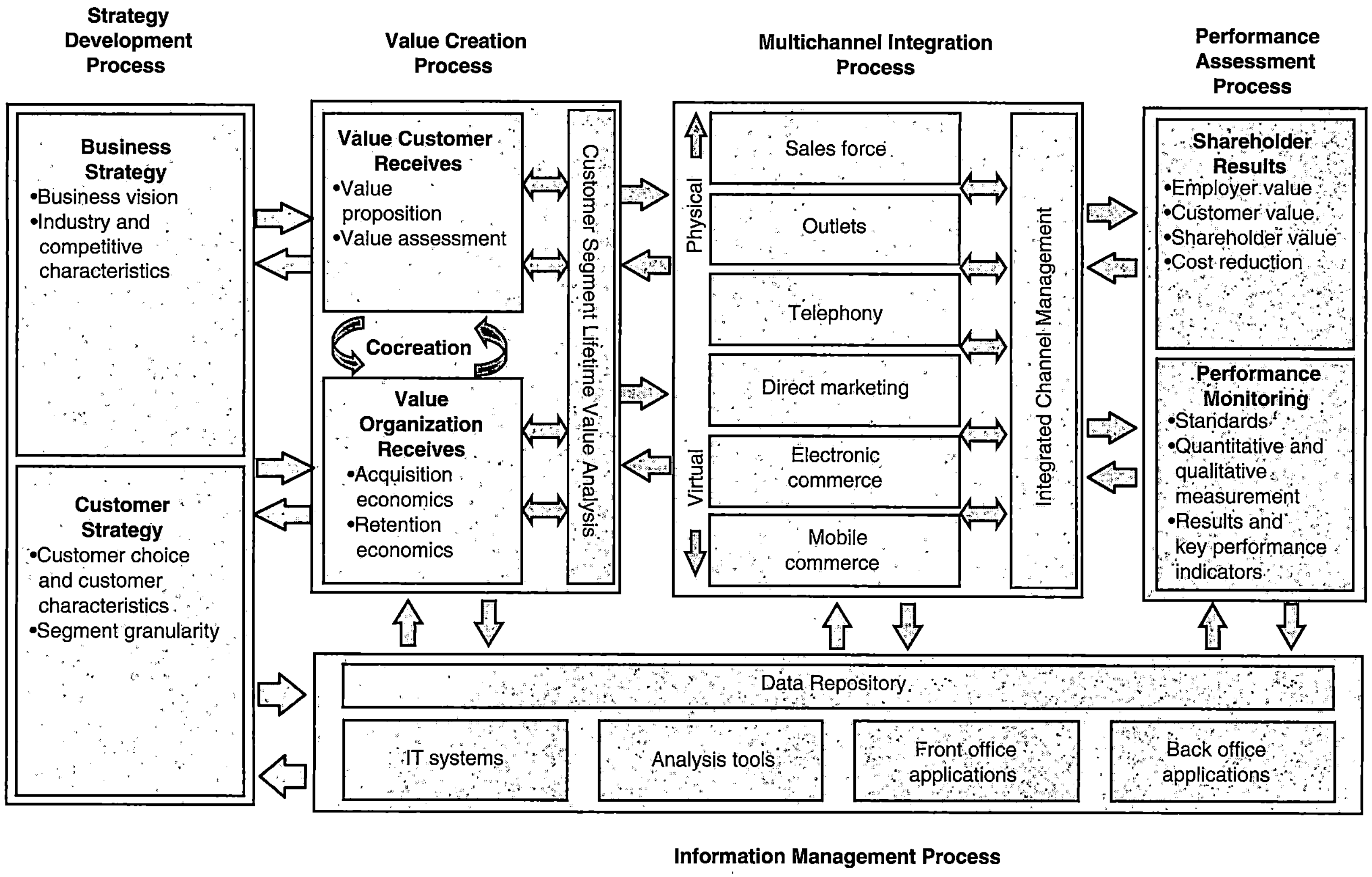
Customer strategy involves examining the existing and potential customer base and identifying which forms of segmentation are most appropriate. As part of this process, the organization needs to consider the level of subdivision for customer segments, or segment granularity. This involves decisions about whether a macro, micro, or one-to-one segmentation approach is appropriate (Rubin 1997).

Several authors emphasize the potential for shifting from a mass market to an individualized, or one-to-one, marketing environment. Exploiting e-commerce opportunities and the fundamental economic characteristics of the Internet can enable a much deeper level of segmentation granularity than is affordable in most other channels (e.g., Peppers and Rogers 1993, 1997). In summary, the strategy development process involves a detailed assessment of business strategy and the development of an appropriate customer strategy. This should provide the enterprise with a clearer platform on which to develop and implement its CRM activities.

Value Creation Process

The value creation process transforms the outputs of the strategy development process into programs that both extract and deliver value. The three key elements of the value creation process are (1) determining what value the company can provide to its customer; (2) determining what value the company can receives from its customers; and (3)

FIGURE 2
A Conceptual Framework for CRM Strategy



by successfully managing this value exchange, which involves a process of cocreation or coproduction, maximizing the lifetime value of desirable customer segments.

The Value the Customer Receives

The value the customer receives from the organization draws on the concept of the benefits that enhance the customer offer (Levitt 1969; Lovelock 1995). However, there is now a logic, which has evolved from earlier thinking in business-to-business and services marketing, that views the customer as a cocreator and coproducer (Bendapudi and Leone 2003; Prahalad and Ramaswamy 2004; Vargo and Lusch 2004). These benefits can be integrated in the form of a value proposition (e.g., Lanning and Michaels 1988; Lanning and Phillips 1991) that explains the relationship among the performance of the product, the fulfillment of the customer's needs, and the total cost to the customer over the customer relationship life cycle (Lanning and Michaels 1988). Lanning's (1998) later work on value propositions reflects the cocreation perspective. However, a more detailed synthesis of work in this area is needed in further research.

To determine whether the value proposition is likely to result in a superior customer experience, a company should undertake a value assessment to quantify the relative importance that customers place on the various attributes of a product. Analytical tools such as conjoint analysis can be used to identify customers that share common preferences in terms of product attributes. Such tools may also reveal substantial market segments with service needs that are not fully catered to by the attributes of existing offers.

The Value the Organization Receives and Lifetime Value

From this perspective, customer value is the outcome of the coproduction of value, the deployment of improved acquisition and retention strategies, and the utilization of effective channel management. Fundamental to this concept of customer value are two key elements that require further research. First, it is necessary to determine how existing and potential customer profitability varies across different customers and customer segments. Second, the economics of customer acquisition and customer retention and opportunities for cross-selling, up-selling, and building customer advocacy must be understood. How these elements contribute to increasing customer lifetime value is integral to value creation.

Customer retention represents a significant part of the research on value creation. For example, Reichheld and Sasser (1990) identify the net present value profit improvement of retaining customers, and Rust and Zahorik (1993) and Rust, Zahorik, and Keiningham (1995) outline procedures for assessing the impact of satisfaction and quality improvement efforts on customer retention and market share. More recently, research has emphasized customer equity (e.g., Blattberg and Deighton 1996; Hogan, Lemon, and Rust 2002; Rust, Lemon, and Zeithaml 2004). Calculating the customer lifetime value of different segments enables organizations to focus on the most profitable customers and customer segments. The value creation process is a crucial component of CRM because it translates business and customer strategies into specific value proposition statements that demonstrate what value is to be delivered to customers, and thus, it explains what value is to be received by the organization, including the potential for cocreation.

Multichannel Integration Process

The multichannel integration process is arguably one of the most important processes in CRM because it takes the outputs of the business strategy and value creation processes and translates them into value-adding activities with customers. However, there is only a small amount of published work on the multichannel integration in CRM (e.g., Friedman and Furey 1999; Funk 2002; Kraft 2000; Sudharshan and Sanchez 1998; Wagner 2000). The multichannel integration process focuses on decisions about what the most appropriate combinations of channels to use are; how to ensure that the customer experiences highly positive interactions within those channels; and when a customer interacts with more than one channel, how to create and present a single unified view of the customer.

Channel Options

Today, many companies enter the market through a hybrid channel model (Friedman and Furey 1999; Moriarty and Moran 1990) that involves multiple channels, such as field sales forces, Internet, direct mail, business partners, and telephony. There are a growing number of channels by which a company can interact with its customers. Through an iterative process, we categorized the many channel options into six categories broadly based on the balance of physical or virtual contact (see Figure 2). These include (1) sales force, including field account management, service, and personal representation; (2) outlets, including retail branches, stores, depots, and kiosks; (3) telephony, including traditional telephone, facsimile, telex, and call center contact; (4) direct marketing, including direct mail, radio, and traditional television (but excluding e-commerce); (5) e-commerce, including e-mail, the Internet, and interactive digital television; and (6) m-commerce, including mobile telephony, short message service and text messaging, wireless application protocol, and 3G mobile services. Some channels are now being used in combination to maximize commercial exposure and return; for example, there is collaborative browsing and Internet relay chat, used by companies such as Lands End, and voice over IP (Internet protocol), which integrates both telephony and the Internet.

Integrated Channel Management

Managing integrated channels relies on the ability to uphold the same high standards across multiple, different channels. Having established a set of standards for each channel that defines an outstanding customer experience for that channel, the organization can then work to integrate the channels. The concept of the "perfect customer experience," which must be affordable for the company in the context of the segments in which it operates and its competition, is a relatively new concept. This concept is now being embraced in industry by companies such as TNT, Toyota's Lexus, Oce, and Guinness Breweries, but it has yet to receive much attention in the academic literature. Therefore, multichannel integration is a critical process in CRM because it represents the point of cocreation of customer value. However, a company's ability to execute multichannel integration successfully is heavily dependent on the organization's ability to gather and deploy customer information from all channels and to integrate it with other relevant information.

Information Management Process

The information management process is concerned with the collection, collation, and use of customer data and information from all customer contact points to generate customer insight and appropriate marketing responses. The key material elements of the information management process are the data repository, which provides a corporate memory of customers; IT systems, which include the organization's computer hardware, software, and middleware; analysis tools; and front office and back office applications, which support the many activities involved in interfacing directly with customers and managing internal operations, administration, and supplier relationships (Greenberg 2001).

Data Repository

The data repository provides a powerful corporate memory of customers, an integrated enterprisewide data store that is capable of relevant data analyses. In larger organizations, it may comprise a data warehouse (Agosta 1999; Swift 2000) and related data marts and databases. There are two forms of data warehouse, the conventional data warehouse and the operational data store. The latter stores only the information necessary to provide a single identity for all customers. An enterprise data model is used to manage this data conversion process to minimize data duplication and to resolve any inconsistencies between databases.

IT Systems

Information technology systems refer to the computer hardware and the related software and middleware used in the organization. Often, technology integration is required before databases can be integrated into a data warehouse and user access can be provided across the company. However, the historical separation between marketing and IT sometimes presents integration issues at the organizational level (Glazer 1997). The organization's capacity to scale existing systems or to plan for the migration to larger systems without disrupting business operations is critical.

Analytical Tools

The analytical tools that enable effective use of the data warehouse can be found in general data-mining packages and in specific software application packages. Data mining enables the analysis of large quantities of data to discover meaningful patterns and relationships (e.g., Groth 2000; Peacock 1998). More specific software application packages include analytical tools that focus on such tasks as campaign management analysis, credit scoring, and customer profiling.

Front Office and Back Office Applications

Front office applications are the technologies a company uses to support all those activities that involve direct interface with customers, including SFA and call center management. Back office applications support internal administration activities and supplier relationships, including human resources, procurement, warehouse management, logistics software, and some financial processes. A key concern about the front and back office systems offered by CRM vendors is that they are sufficiently connected and cocoordinated to improve customer relationships and workflow.

CRM Technology Market Participants

Gartner segments vendors of CRM applications and CRM service providers into specific categories (Radcliffe and Kirkby 2002), and Greenberg (2001) and Jacobsen (1999) provide detailed reviews of CRM vendors' products. The key segments for CRM applications are Integrated CRM and Enterprise Resource Planning Suite (e.g., Oracle, PeopleSoft, SAP), CRM Suite (e.g., E.piphany, Siebel), CRM Framework (e.g., Chordiant), CRM Best of Breed (e.g., NCR Teradata; Broadvision), and "Build it Yourself" (e.g., IBM, Oracle, Sun). The CRM service providers and consultants that offer implementation support specialize in the following areas: corporate strategy (e.g., McKinsey, Bain); CRM strategy (e.g., Peppers & Rogers, Vectia); change management, organization design, training, human resources, and so forth (e.g., Accenture); business transformation (e.g., IBM); infrastructure building and systems integration (e.g., Siemens, Unisys); infrastructure outsourcing (e.g., EDS, CSC); business insight, research, and so forth (e.g., SAS); and business process outsourcing (e.g., Acxiom). The need for comprehensive and scalable options has created scope for many new products from CRM vendors. However, despite their claim to be "complete CRM solution providers," few software vendors can provide the full range of functionality that a complete CRM business strategy requires.

The information management process provides a means of sharing relevant customer and other information throughout the enterprise and "replicating the mind of the customer." To ensure that technology solutions support CRM, it is important to conduct IT planning from a perspective of providing a seamless customer service rather than planning for functional or product-centered departments and activities. Furthermore, data analysis tools should measure business activities. This kind of analysis provides the basis for the performance assessment process.

Performance Assessment Process

The performance assessment process covers the essential task of ensuring that the organization's strategic aims in terms of CRM are being delivered to an appropriate and acceptable standard and that a basis for future improvement is established. This process can be viewed as having two main components: shareholder results, which provide a macro view of the overall relationships that drive performance, and performance monitoring, which provides a more detailed, micro view of metrics and key performance indicators.

Shareholder Results

To achieve the ultimate objective of CRM, the delivery of shareholder results, the organization should consider how to build employee value, customer value, and shareholder value and how to reduce costs. Recent research on relationships among employees, customers, and shareholders has emphasized the need to adopt a more informed and integrated approach to exploiting the linkages among them. The service profit chain model and related research focuses on establishing the relationships among employee satisfaction, customer loyalty, profitability, and shareholder value (e.g., Heskett et al. 1994; Loveman 1998). Organizations also need to focus on cost reduction opportunities. Two means of cost reduction are especially relevant to CRM: deployment of technologies ranging from automated telephony services to Web services and the use of new electronic channels such as online, self-service facilities. The development of models such as the service profit chain has been important in enabling companies to consider the effectiveness of CRM at a strategic level in terms of improving shareholder results.

Performance Monitoring

Despite a growing call for companies to be more customer oriented, there is concern that, in general, the metrics used by companies to measure and monitor their CRM performance are not well developed or well communicated. Ambler's (2002) research findings raise particular concern; he finds that key aspects of CRM, such as customer satisfaction and customer retention, only reach the board in 36% and 51% of companies, respectively. Even when these metrics reach the board level, it is not clear how deeply they are understood and how much time is spent on them. Traditional performance measurement systems, which tend to be functionally driven, may be inappropriate for cross-functional CRM.

Recent efforts to provide cross-functional measures, such as the balanced scorecard (Kaplan and Norton 1996), are a useful advance. The format of the balanced scorecard enables a wide range of metrics designs. Indicators that can reveal future financial results, not just historical results, need to be considered as part of this process. Standards, metrics, and key performance indicators for CRM should reflect the performance standards necessary across the five major processes to ensure that CRM activities are planned and practiced effectively and that a feedback loop exists to maximize performance improvement and organizational learning. A consideration of "return on relationships" (Gummesson 2004) will assist in identifying further metrics that are relevant to the enterprise.

Discussion

In this article, we develop a cross-functional, process-based CRM strategy framework that aims to help companies avoid the potential problems associated with a narrow technological definition of CRM and realize strategic benefits. Our research was based on large industrial companies because the size and complexity of such enterprises is likely to present the greatest CRM challenges. We did not examine issues related to small or medium-sized companies and nonprofit organizations in this work.

This study contributes to the marketing literature in several ways. First, our work extends a managerial perspective that stresses the importance of cross-functional processes in CRM strategy and contributes to the positioning of the poorly defined CRM concept within the marketing literature. Second, it provides a process-based conceptual framework for strategic CRM and identifies key elements within each process. Third, it makes a contribution to the limited literature on interaction research. Finally, the research represents a grounded contribution that offers managers insight into the development and implementation of CRM strategies. To date, this framework has been used by companies to address several issues, including surfacing problematic CRM issues, planning the key components of a CRM strategy, identifying which process components of CRM should receive priority, creating a platform for change, and benchmarking other companies' CRM activities.

Much research remains to be done in the exploration of the multifaceted nature of CRM. Sheth (1996) notes that for an emerging management discipline, it is important to have an acceptable definition that encompasses all facets to focus understanding and growth of knowledge in the discipline. He proposes a multistage process for achieving this that begins with delimiting the domain, agreeing on a definition, developing performance measures, and developing explanatory theory. The framework we propose in this article offers a potentially useful starting point for the development of improved insight into these aspects of CRM theory. The task of delimiting the domain, agreeing on a definition for CRM, and building a research agenda will be an evolving process in this nascent area. We do not attempt to build such a research agenda in the current work; however, we emphasize the importance of CRM implementation and related people issues as an area in which further research is urgently needed. Initial work by Ebner and colleagues (2002), Gummesson (2002b, c), Henneberg (2003), Pettit (2002), and Rigby, Reichheld, and Schefter (2002) provides a useful platform from which to develop this important research area.

Appendix
Some Definitions and Descriptions of CRM

- •CRM is an e-commerce application (Khanna 2001).
- •CRM is a term for methodologies, technologies, and e-commerce capabilities used by companies to manage customer relationships (Stone and Woodcock 2001).
- •CRM is an enterprisewide initiative that belongs in all areas of an organization (Singh and Agrawal 2003).
- •CRM is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer (Parvitiyar and Sheth 2001).

- CRM is about the development and maintenance of long-term, mutually beneficial relationships with strategically significant customers (Buttle 2001).
- CRM includes numerous aspects, but the basic theme is for the company to become more customer-centric. Methods are primarily Web-based tools and Internet presence (Gosney and Boehm 2000).
- CRM can be viewed as an application of one-to-one marketing and relationship marketing, responding to an individual customer on the basis of what the customer says and what else is known about that customer (Peppers, Rogers, and Dorf 1999).
- CRM is a management approach that enables organizations to identify, attract, and increase retention of profitable customers by managing relationships with them (Hobby 1999).
- CRM involves using existing customer information to improve company profitability and customer service (Couldwell 1999).
- CRM attempts to provide a strategic bridge between information technology and marketing strategies aimed at building long-term relationships and profitability. This requires "information-intensive strategies" (Glazer 1997).
- CRM is data-driven marketing (Kutner and Cripps 1997).
- CRM is an enterprise approach to understanding and influencing customer behavior through meaningful communication to improve customer acquisition, customer retention, customer loyalty, and customer profitability (Swift 2000).

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The Role of Relational Information Processes and Technology Use in Customer Relationship Management

Drawing on the relationship marketing and market information processing literature streams, the authors conceptualize and measure relational information processes, or organizational routines that are critical for customer relationship management (CRM). The authors examine the key drivers and outcome of relational information processes and the role of technology in implementing CRM using data collected from a diverse sample of firms. The results show that relational information processes play a vital role in enhancing an organization's customer relationship performance. By moderating the influence of relational information processes on customer relationship performance, technology used for CRM performs an important and supportive role. The study provides insights into why the use of CRM technology might not always deliver the expected customer relationship performance outcome.

Relationship marketing scholars have long advocated that pursuing long-tem relationships with customers instead of a transaction-oriented approach is more profitable for firms (e.g., Morgan and Hunt 1994). Customer relationship management (CRM) is a core organizational process that focuses on establishing, maintaining, and enhancing long-term associations with customers (Srivastava, Shervani, and Fahey 1999). The rapid advance in information technology (IT) has presented firms with new technology-based solutions—namely, CRM technology—to manage customer relationships. Such technology is a suite of IT solutions designed to support the CRM process (Rigby, Reichheld, and Schefter 2002). Many firms have invested in CRM technology (Day 2000), hoping to discriminate between profitable and unprofitable customers, provide customized service, and obtain greater customer retention (Peppers, Rogers, and Dorf 1999). However, the results of using CRM technology have been mixed (e.g., Reinartz, Krafft, and Hoyer 2004), and this has created substantial concern about its viability and effectiveness (Rigby, Reichheld, and Schefter 2002). The business press also gives conflicting accounts about the efficacy of CRM technology (e.g., Whiting 2001), and research on this issue has been limited (Winer 2001).

The unease with CRM technology use is similar to the disillusionment that firms encountered in the late 1980s with the use of IT to automate business activities. The frustration with IT systems led to a focus on information process redesign in organizations to take advantage of the technology (see El-Sawy 2001). Akin to the situation with the use of IT systems in organizations, disappointing outcomes from CRM technology use could be the result of inappropriate information processes. Therefore, research exploring organizational information processes relevant to CRM (hereafter, relational information processes) could help shed light on the role of CRM technology in firms.

To address this need, the objectives of this study are to conceptualize and examine the roles of relational information processes and CRM technology in customer relationship management. We define relational information processes as encompassing the specific routines that a firm uses to manage customer information to establish long-term relationships with customers. The academic research on market information use (e.g., Menon and Varadarajan 1992; Moorman 1995), market orientation (e.g., Kohli and Jaworski 1990; Narver and Slater 1990), and organizational learning (e.g., Sinkula 1994; Slater and Narver 1995) has long emphasized the important role of organizational information processes (e.g., information acquisition, dissemination, use) in shaping how firms respond to their market environment. Our study follows this tradition. To conceptualize relational information processes, we draw on previous research and managers' feedback. Then, using data collected from a diverse sample of firms, we empirically examine the key drivers and outcome of relational information processes. We evaluate the role of CRM technology use in customer relationship management by testing its moderating influence on the association between relational informa-

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tion processes and customer relationship performance (i.e., the performance of the organization on customer satisfaction and retention).

The contributions of the manuscript are the following: First, we conceptualize and measure relational information processes. Second, we demonstrate how relational information processes mediate the influence of organizational culture and management system on customer relationship performance. Third, we draw a distinction between relational information processes, which are grounded in relationship marketing theory, and the use of technology for CRM. Fourth, we measure CRM technology use and show that it interacts with relational information processes to influence customer relationship performance. The latter finding implies that CRM technology enables a more effective implementation of relational information processes. Thus, this article addresses the role of CRM technology in organizations, an issue of vital importance to managers, by building on the theoretical foundations of relationship marketing and organizational information–processing research.

In the following section, we identify relational information processes. Then, we develop hypotheses that detail how organizational culture and management systems drive the relational information processes and how relational information processes and CRM technology use influence customer relationship performance. Thereafter, we explain the research methodology. Last, we discuss the results, implications for research and practice, and limitations and future research directions.

Relational Information Processes

The Need for Relational Information Processes

Relationship marketing is based on the generation of a foundation of shared interest, in which firms and customers are commited to each other. Firms strive to use interactions with customers to generate commitment, a lasting desire in customers to maintain a valued relationship, and trust, a readiness to rely on the exchange partner. Trust is considered especially critical for relational exchanges because it is a crucial determinant of commitment. An important antecedent of trust is communication (Morgan and Hunt 1994). Communication in the CRM context involves the sharing of information between a firm and its customers (De Wulf, Odeken-Schröder, and Iacobucci 2001). To establish and maintain relationships, it is also imperative that organizations use the information to shape appropriate responses to customer needs. In effect, information plays a key role in building and maintaining customer relationships.

Relationship marketing follows different precepts from those of transactional marketing in the firm–customer interaction. Compared with transactional marketing, relationship marketing requires a much greater degree of firm–customer information sharing and differs in terms of the type of learning involved (Selnes and Sallis 2003) and in how customer information is used. Therefore, although general marketing information processes have been discussed in prior research (e.g., Menon and Varadarajan 1992; Moorman 1995), customer information processes for relationship marketing require specific attention (see also Zahay and Griffin 2004). As we previously noted, we conceptualize these as relational information processes. These information processes systematize the capture and use of customer information so that a firm's effort to build relationships is not rendered ineffective by poor communication, information loss and overload, and inappropriate information use.

Dimensions of Relational Information Processes

Our approach to understanding relational information processes involved a review of extant academic and business literature on CRM. In addition, we interviewed 15 managers (in eight companies that employ customer relationship managers and seven CRM technology vendors) and conducted a preliminary survey on a CRM-focused Web site to glean insights into relational information processes. On the basis of the literature review, interviews, and the preliminary Web-based survey, we suggest that the relational information processes construct consists of five dimensions: information reciprocity, information capture, information integration, information access, and information use. Information reciprocity ensures effective communication, information capture and integration prevent information loss, information access limits information overload, and information use routines ensure that customer information is used consistently with the needs of CRM. We describe these processes next.

Information reciprocity. Reciprocity occurs when actions taken by one exchange partner are matched by the other; it is a key defining characteristic of CRM (De Wulf, Odeken-Schröder, and Iacobucci 2001). Therefore, emphasizing processes for such interactive firm–customer information exchange is important for a firm to execute its relationship marketing strategy effectively (Day 2000). Information reciprocity refers to the processes that enable customers to interact and share information with the firm and that enable the firm to respond to customers. Information reciprocity is an integral part of relational information processes because trust and commitment, the pillars of a strong relationship, are unlikely to develop in the absence of collaborative or mutual interactive communication (Mohr, Fisher, and Nevin 1996).

Information capture. Research in market orientation (e.g., Kohli and Jaworski 1990; Narver and Slater 1990), market information use (e.g., Menon and Varadarajan 1992), and organizational learning (e.g., Sinkula 1994) has emphasized the importance of information acquisition. Building customer relationships requires detailed and up-to-date information about customer interactions with an organization. Customers often have multiple channels to communicate with a firm and could interact with numerous departments, such as sales, customer service, and marketing. The information from these interactions serves as the basis for future interactions in the context of CRM (Peppers and Rogers 1997). Thus, information capture processes that acquire information from customer interactions with various sources and channels are a critical aspect of relational information processes.

Information integration. All interactions between a firm and its customers through different departments and contact points are sources of customer information. However, if this information exists in disparate form with the sources that interact with the customer, it can impede consistent and efficient communication. The development of trust is contingent on customers obtaining consistent and effective responses when they interact with the firm. Such responses are possible only when the history of a customer's relationship with the firm is available to support customer interactions. This requires information integration processes to ensure the assimilation of customer information from all firm–customer interactions to develop a detailed history of customer relationships and prevent loss of customer information.

Information access. The market orientation literature (e.g., Kohli and Jaworski 1990; Narver and Slater 1990) considers information dissemination a crucial component of the information processes that enhance the responsiveness of the firm. Customers may interact with various functional areas in the firm, such as sales, marketing, and customer service. Thus, providing relevant employees with access to updated and integrated customer information should be a priority for firms practicing CRM. Although the market orientation literature focuses on information dissemination, the preliminary research we conducted suggests that employees who are responsible for managing customer relationships viewed the issue more from the perspective of information access than information dissemination on a continuous basis. Mere dissemination, which implies distribution, was perceived as likely to result in information overload as a result of the vast numbers of customer interactions with an organization. Thus, we consider the term information access more accurately descriptive of the information process required to sustain customer relationships.

Information use. Market information use has been classified into action-oriented use, knowledge-enhancing use, and affective use (see Menon and Varadarajan 1992). To build and sustain customer relationships, firms should deploy the acquired customer information in a manner that is consistent with the philosophy of relationship management. Doing so would imply that firms use the information to understand the needs and behaviors of their customer (knowledge-enhancing use) and develop and offer customer-specific products and services (action-oriented use). Relationship marketing also suggests that customers should be treated in accordance with the value they offer to the firm, which in turn enhances customer lifetime value (Venkatesan and Kumar 2004). Therefore, customer information is also used to identify high-value customers.

Antecedents to Relational Information Processes

Traditionally, it was assumed that firms in the business-to-business sector and those involved in marketing services had greater motivation to build relationships with their customers. However, Coviello and colleagues (2002) find that firms compete using transactional, relational, or hybrid approaches regardless of whether they supply services or goods in the consumer or business-to-business arenas. These results imply that researchers need to examine factors that are more specific than the broad services/goods and business-to-consumer/business-to-business classifications as antecedents to relational information processes.

Organizational learning theory provides theoretical guidance to assess the antecedents to relational information processes. The marketing literature on organizational learning (e.g., Sinkula 1994) suggests that four types of factors could be antecedents to information processes: organizational culture, organizational systems, task-related factors, and environmental factors. We address two types of antecedents to relational information processes: customer relationship orientation (organizational culture) and customer-centric management system (organizational systems). Environmental factors (i.e., competitive intensity and environmental dynamism) form the background against which the relationships are tested and used as covariates. The conceptual model appears in Figure 1.

Customer Relationship Orientation

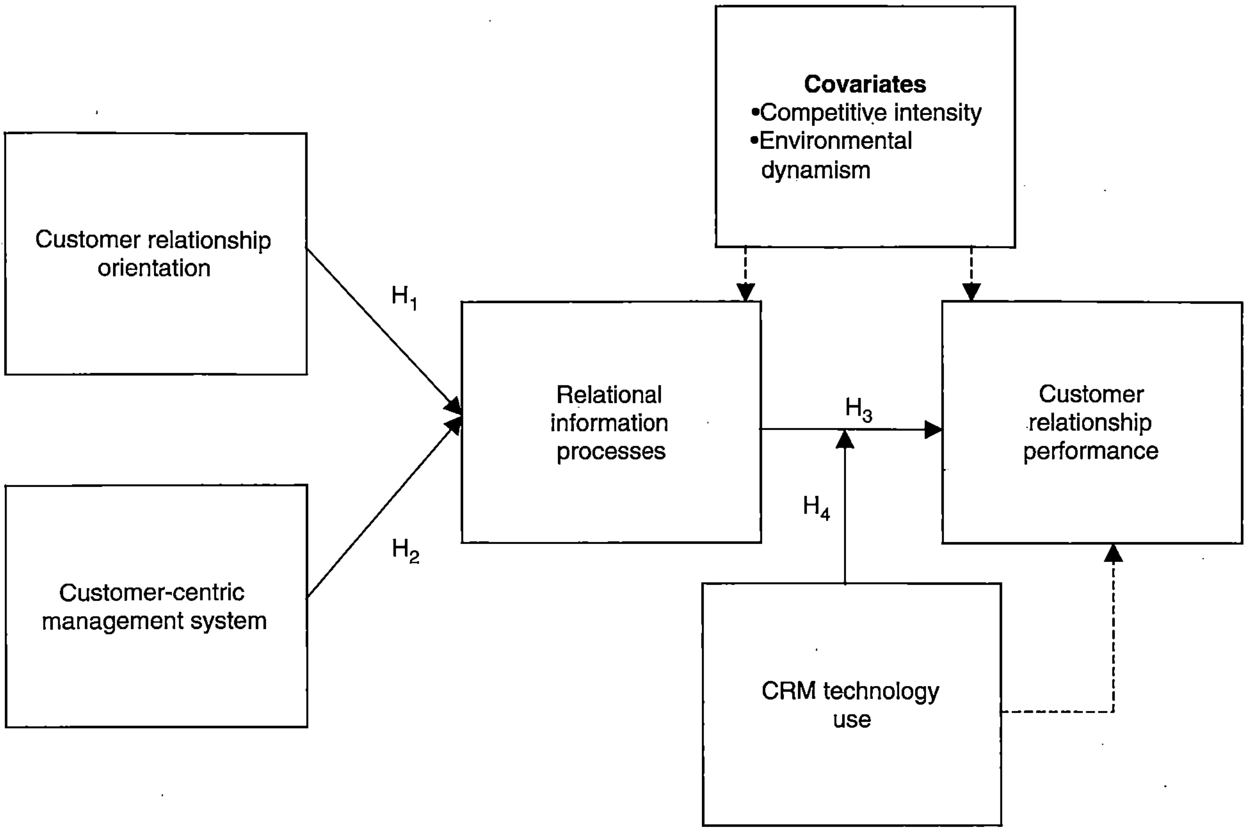
Previous marketing literature supports the view that organizational culture influences information processes (Menon and Varadarajan 1992; Sinkula 1994). An organization's culture is the deeply embedded values and beliefs that establish the norms for appropriate behavior (Deshpandé, Farley, and Webster 1993). Organizational culture affects a firm's choice of outcomes and the means to accomplish those outcomes (Moorman 1995). Therefore, customer relationship orientation, which is rooted in the firm's overall culture, guides the organization's attitude toward both CRM and the implementation of the necessary processes (Day 2000). Essentially, customer relationship orientation establishes a "collective mind" (Weick and Roberts 1993) or a belief system for the organization that considers customer relationship an asset and drives the choice of means (processes) to accomplish this outcome (Day 2000). Because relational information processes are the means to establishing effective relationships, customer relationship orientation motivates their implementation.

H_1: Customer relationship orientation has a positive association with relational information processes.

Customer-Centric Management System

Information processes are likely to be influenced by an organization's management system (Menon and Varadarajan 1992). The management system represents the organizational climate, which comprises the structure and incentives that motivate behaviors consistent with a culture (Slater and Narver 1995). As such, a management system or configuration (Day 2000) that is consistent with a customer relationship orientation and reflects the design of the organization's structure and incentives is likely to influence the implementation of CRM. A customer-centric management system should consist of structural aspects that ensure that organizational actions are driven by customer needs and not by the internal concerns of functional areas. In addition, employee evaluation schemes and incentives should be designed to encourage behaviors consistent with a customer relationship–oriented culture by augmenting the organiza-

FIGURE 1
Conceptual Framework



Covariates
•Competitive intensity
•Environmental dynamism
Customer relationship orientation
H1
Relational information processes
H3
Customer relationship performance
H4
H2
Customer-centric management system
CRM technology use

tion's ability to focus on customer interactions and by ensuring that expertise from different functional areas is deployed to promote the quality of customer experience (Day 2000). A customer-centric management system helps organizations initiate relational information processes by breaking down functional barriers to customer-centered actions and ensuring adequate focus on customer interactions.

H_2: Customer-centric management system has a positive association with relational information processes.

Performance Outcome of Relational Information Processes and CRM Technology Use

Relational Information Processes and Customer Relationship Performance

In this study, customer relationship performance focuses on two key aspects of relationships: customer retention and customer satisfaction. By providing quick and effective responses to customers, relational information processes are likely to enhance customer satisfaction by providing consumption-related fulfillment (Oliver 1996). Apart from shaping responses to customers, by enabling customers to communicate easily with the organization, relational information processes help register customers' complaints and provide them feedback. In addition, the integration of customer information and the sharing of it with key customer contact employees enable customers to communicate with firms more effectively. Cannon and Homburg (2001) find that frequent and open communication between a supplier and a customer boosts the customer's efficiency in using the firm's products or services, thereby improving customer satisfaction and loyalty. Relational information processes may also boost customer relationship learning (Selnes and Sallis 2003) by providing customers with a greater understanding of organizations' attempts to respond to their demands and enhancing customer satisfaction and loyalty. In summary,

H_3: Relational information processes have a positive association with customer relationship performance.

CRM Technology Use and Customer Relationship Performance

Customer relationship management technology entails IT designed for CRM. In this study, we consider CRM technology use distinct from the relational information processes that drive CRM. This approach is consistent with that advocated by prior research in technology use in organizations that regard technology as a resource that supports the implementation of information processes (e.g., Brynjolfsson and Hitt 2000; Hitt and Snir 1999; Reinartz, Krafft, and Hoyer 2004). The use of CRM technology is expected to boost the ability of an organization to sustain profitable customer relationships by enabling information to be integrated and shared smoothly, thus facilitating more efficient and effective firm–customer interaction, analysis of customer data, and customization of responses (Day 2003). Technology components of CRM include front office applications that support sales, marketing, and service; a data depository; and back office applications that help integrate and analyze the data (Greenberg 2001).[1] Sales support is designed to help the sales force acquire and retain customers, reduce administrative time, and enable the efficient management of accounts (Speier and Venkatesh 2002). Therefore, sales support permits the management of sales leads and supplies competitor and customer information to the sales force. In addition, sales support helps manage sales through multiple channels by tracking product availability and delivery. Marketing support includes market planning, campaign execution, and campaign performance measurement (Greenberg 2001). As such, marketing support comprises the generation of customized offers and communications and the assessment of product profitability. Service support coordinates the request and delivery of service and helps customers serve themselves by providing ready access to a knowledge base of solutions (Meuter et al. 2000).

These front office or customer interaction solutions are supported by a customer data depository and software that helps integrate and analyze the data. Firms develop a central data bank in which all customer-related information is stored. Creating a database that is guided by market intelligence is a critical component of a firm's attempts to create customer assets through long-term relationships (Berger et al. 2002). The database should be accessible to relevant functions, such as sales, customer service, and marketing. The data are integrated and analyzed by means of software to understand customer preferences and estimate customer lifetime value, retention, and loyalty (Greenberg 2001).

Prior research suggests that IT plays a complementary role by enhancing the effectiveness of organizational processes (Hitt and Snir 1999; Melville, Kraemer, and Gurbaxani 2004). Two factors are considered complementary if an increase in the level of one factor enhances the marginal value of the other factor (Milgrom and Roberts 1995). Although IT does not substitute for organizational processes, it increases their marginal value by enabling effective implementation (Hitt and Snir 1999). Therefore, firms adopt IT solutions to complement organizational processes by enhancing their marginal value (Brynjolfsson and Hitt 2000).

Relational information processes are implemented so that the information required to establish trust and commitment between a firm and its customers is developed, provided to decision makers, and used effectively. Relational information processes concretize the implementation of customer relationship orientation by laying out the way that a firm should use customer information to develop strong and enduring relationships with valuable customers. In the absence of a clear delineation of these processes, the implementation of CRM technology might not be consistent with employees' expectations of customer information management. The mismatch between the customer information management practices in the organization and the information-handling and -processing capability of the CRM technology system could prevent the organization from taking advantage of the capabilities of the CRM technology system. Using IT solutions without designing appropriate processes may create "significant productivity losses as any benefits of computerization are more than outweighed by negative interactions with existing organizational practices" (Brynjolfsson and Hitt 2000, p. 25). If relational information processes are delineated, CRM technology ensures that their implementation is rendered efficient by enabling a smoother reciprocal flow of information and by limiting information loss and overload by capturing, integrating, and providing information access to decision makers. Reinartz, Krafft, and Hoyer (2004) note that CRM technology is a facilitator of CRM activities. By playing a complementary role, CRM technology enhances the marginal value of relational information processes, thereby improving customer relationship performance.

> H_4: CRM technology use has a positive moderating influence on the association between relational information processes and customer relationship performance.

Covariates: Competitive Intensity and Environmental Dynamism

Institutional theory (DiMaggio and Powell 1983) suggests that environmental variables (e.g., competitive intensity; the extent of interfirm rivalry; environmental dynamism, the variability of customer needs, and technology) influence organizational actions. Competitive intensity might compel firms to institute relational information processes by emphasizing the need to retain customers and thus hurt customer relationship performance by reducing customer retention. Environmental dynamism might motivate firms to institute relational information processes because relationship learning might be more critical in rapidly changing environments. Customer relationship performance might be lower in dynamic environments because the rapid changes in customer needs and technology opportunity might hurt customer retention. In this study, we use competitive intensity and environmental dynamism as covariates.

Methodology

Sample Characteristics and Data Collection

Firms pursue customer relationship programs in both services and goods firms and in business-to-business and business-to-consumer markets (Coviello et al. 2002). Therefore, in the interest of generalizability of the results, we decided not to constrain our sample to specific industries. On the basis of the interviews and pretesting, we identified a competent key informant as a marketing, sales, or customer service executive, typically at the level of vice president or general manager in a strategic business unit (SBU).

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[1] Although there are different conceptualizations of CRM technology components, on the basis of the interviews we conducted with CRM users, we decided to adapt Greenberg's (2001, pp. 40–42) conceptualization.

Furthermore, because we found in our preliminary research that implementation of CRM and relational information processes is feasible without CRM technology (see also Rigby, Reichheld, and Schefter 2002), it was not essential that our sample include only firms that had implemented CRM technology. Using two commercial lists, we developed a contact list of senior marketing, sales, and customer service managers in 1105 SBUs of top firms in the United States (in terms of sales revenue).

The first list was vetted using telephone calls; it provided key informant names and/or e-mail addresses in 542 organizations. We mailed these informants the print questionnaire two times, and when the e-mail address was available, we sent e-mails requesting participation. Informants were also given an option to fill out the questionnaire on a Web site. The format of the online questionnaire was similar to that of the print questionnaire. We had e-mail addresses for all 563 contacts on the second list, and we e-mailed them a maximum of three times, requesting them to respond using the questionnaire on the Web site.

A total of 172 key informants responded to the mail and Web survey, for a response rate of 15.56%. We used data for 21 respondents only for measurement analysis because of missing information on several questions. The questionnaire was complex and long, and senior managers were targeted as key informants. Given these considerations, the response rate is consistent with that reported in previous organizational research (e.g., Homburg and Pflesser 2000). Of the 172 respondents, 48 answered the mail questionnaire, and the remaining 124 responded on the Web. The two commercial lists that provided the mailing sample generated 45.5% and 55.5% of the respondents, respectively. We compared respondents from the two lists and those who responded online and by mail on key variables, such as implementation of CRM system, annual revenue, and how long the key informant had been with the firm. On the basis of chi-square and F tests, mail and Web-based respondents and respondents from both lists did not significantly differ on any of these factors. Therefore, we pooled the data for further analysis.

Of the firms that provided data, 28% had implemented CRM technology, and another 28.2% were planning to do so. On average, the key informant had been with the company for approximately eight years. The median annual revenue for the firms that responded was $140 million. Business-to-business SBUs constituted 69.5% of the respondents, and the other 30.5% were predominantly business-to-consumer SBUs (approximately 50% of which also had some business-to-business transactions). Of the respondents, 49.7% were goods firms, and 50.3% were service firms. A comparison of early and late responders to the survey indicated no significant differences in the characteristics of these SBUs on the means of constructs such as CRM technology use and relational information processes, leading us to conclude that the likelihood of nonresponse bias is minimal.

Measure Development

We developed measurement scales for customer relationship orientation, customer-centric management system, and five dimensions of relational information processes by following procedures observed in the marketing literature (see Churchill 1979). On the basis of a review of the literature on relationship marketing and information use, managerial interviews, and the preliminary survey, we developed a list of indicators to measure the constructs. We pretested these measures over two stages with samples of academics and managers. Three academics checked the scale indicators for face validity and provided comments that we used to revise the scales. Using e-mail, we collected data from 46 managers engaged in CRM activities. We conducted exploratory factor analysis, revised the scales, and developed the questionnaire. The scales consisted of seven-point Likert-type indicators. We describe the measures next (see Table 1).

We measured customer relationship orientation using a scale that reflects the cultural propensity of the organization to undertake CRM (Day 2000). In developing this scale, we focused on shared values of an organization that are consistent with CRM (e.g., considering customer relationships a valuable asset and emphasizing customer retention) and senior management support for CRM. Customer-centric management system refers to the structure and incentives that provide an organization with the ability to build and sustain customer relationships (Day 2000). Therefore, this measure assessed the organization and coordination of the firm around customers and their needs and specific incentives that enable the firm to focus on CRM.

The information reciprocity scale used indicators that focused on reciprocal communication between the firm and the customer. The information capture measure emphasized the acquisition of customer information on an ongoing basis from various sources. The information integration scale reflected the efforts of the organization to bring together the information collected from various sources and functions on a customer basis. The information access measure focused on the degree to which relevant employees could gain access to integrated customer data in a timely manner. The information use scale assessed the extent to which the firm used customer information to undertake actions that are consistent with CRM.

The customer relationship performance scale assessed customer satisfaction and customer retention. Firms use relational information processes to gain a competitive advantage over their rivals. The performance of an organizational action designed to obtain competitive advantage is more meaningful when it is assessed in relation to competition (Matsuno, Mentzer, and Ozsomer 2002). Therefore, we measured customer relationship performance relative to competition; we derived the measure from Rust, Moorman, and Dickson's (2002) measure. We measured environmental dynamism and competitive intensity by adapting scales from the work of Jaworski and Kohli (1993).

We developed an index for the CRM technology use measure that was similar to the measure of innovation in Han, Kim, and Srivastava's (1998) work and was based on Greenberg's (2001) conceptualization. The CRM technology use measure has six aspects: sales support, marketing support, customer service support, data analysis support, data integration and access support, and customer database. In the questionnaire, we asked the respondents to mark

TABLE 1
Construct Measures and Loadings

	Loadings
Customer Relationship Orientation	
•In our organization, retaining customers is considered to be a top priority.	.837
•Our employees are encouraged to focus on customer relationships.	.915
•In our organization, customer relationships are considered to be a valuable asset.	.912
•Our senior management emphasizes the importance of customer relationships.	.914
Customer-Centric Management System	
•We focus on customer needs while designing business processes.	.820
•In our organization, employees receive incentives based on customer satisfaction measures.	.578
•A key criterion used to evaluate our customer contact employees is the quality of their customer relationships.	.695
•In our organization, business processes are designed to enhance the quality of customer interactions.	.859
•We organize our company around customer-based groups rather than product or function-based groups.	.503
•In our organization, various functional areas coordinate their activities to enhance the quality of customer experience.	.801
Relational Information Processes	
Information Reciprocity	
•We enable our customers to have interactive communications with us.	.695
•We provide our customers with multiple ways to contact the organization.	.990
•We focus on communicating periodically with our customers.	.887
•We maintain regular contact with our customers.	.803
Information Capture	
•We collect customer information on an ongoing basis.	.921
•We capture customer information from internal sources within the organization.	.768
•We collect customer information using external sources (such as market research agencies, syndicated data sources, and consultants).	.502
•The information collected from customers is updated in a timely fashion.	.717
•We use customer interactions to collect information.	.635
Information Integration	
•We integrate customer information from the various functions that interact with customers (such as marketing, sales, and customer service).	.820
•We integrate internal customer information with customer information from external sources.	.711
•We integrate customer information from different communication channels (such as telephone, mail, e-mail, the Internet, fax, and personal contact).	.851
•We merge information collected from various sources for each customer.	.864
Information Access	
•In our organization, relevant employees find it easy to access required customer information.	.884
•In our organization, relevant employees can access required customer information even when other departments/functional areas have collected it.	.874
•In our organization, relevant employees always have access to up-to-date customer information.	.876
•In our organization, relevant employees are provided the information required to manage customer relationships.	.829
Information Use	
•We use customer information to develop customer profiles.	.693
•We use customer information to segment markets.	.710
•We use customer information to assess customer retention behavior.	.666
•We use customer information to identify appropriate channels to reach customers.	.776
•We use customer information to customize our offers.	.739
•We use customer information to identify our best customers.	.797
•We use customer information to assess the lifetime value of our customers.	.620
Customer Relationship Performance	
In the most recent year, relative to your competitors, how has your business unit performed with respect to	
•Achieving customer satisfaction?	1.000
•Keeping current customers?	.590

TABLE 1
Continued

	Loadings
Environmental Dynamism	
•In our business, customers' product preferences change substantially over time.	.528
•We are witnessing demand for our products and services from customers who never bought them before.	.520
•The technology in our industry is changing rapidly.	.851
•Technological changes provide big opportunities in our industry.	.910
•A large number of new product ideas have been made possible through technological breakthroughs in our industry.	.831
Competitive Intensity	
•Competition in our business is cut throat.	.902
•We are in a business with very aggressive competitors.	.970
•Price competition in this business is severe.	.825
CRM Technology Use Measure	
Which of the following functions is your current CRM system capable of doing? Please check all that apply.	
Sales Support	
☐ Provides sales force in the field with customer information.	
☐ Provides sales force in the field with competitor information.	
☐ Assigns leads and prospects to appropriate sales personnel.	
☐ Provides customized offers to sales people on field.	
☐ Provides sales force with leads for cross sell/up sell opportunities.	
☐ Tracks product availability.	
☐ Enables inventory management.	
☐ Controls sales through multiple sales channels.	
Marketing Support	
☐ Supports marketing planning and budgeting.	
☐ Analyzes responses to marketing campaigns.	
☐ Automates routine activities such as providing promotional literature.	
☐ Enables management of marketing promotions.	
☐ Generates customized offers.	
☐ Customizes our communication to customers.	
Service Support	
☐ Allows customer support personnel to access data on customer interactions with all functional areas.	
☐ Provides customers access to a knowledge base of solutions to commonly occurring problems (e.g., frequently asked questions).	
☐ Schedules and tracks service delivery.	
☐ Is able to customize service scripts to the particular customer's needs.	
Analysis Support	
☐ Enables assessment of channel performance.	
☐ Enables forecast of customer preferences.	
☐ Measures customer loyalty.	
☐ Calculates customer life time value.	
☐ Calculates customer retention rates.	
☐ Enables assessment of product profitability.	
Data Integration and Access Support	
☐ Combines customer transaction data with external source data.	
☐ Integrates customer information from different contact points (e.g., mail, telephone, Web, fax).	
☐ Allows relevant employees access to unified consumer data.	
Database	
Which of the following types of data are being collected by your CRM solution? Please check all that apply.	
☐ Online customer data	
☐ Offline customer data	
☐ Customer psychographics (e.g., personality traits)	
☐ Customer lifestyle data (e.g., car & home ownership)	
☐ Internal sales data (catalog/in-store sales, etc.)	
☐ Customer interaction data	
☐ External data sources (e.g., census data, competitor information)	
☐ Customer demographics	

TABLE 1
Continued

	Loadings
☐ Internal financial records (invoices, receivables, etc.)	
☐ Supplier data (inventory, purchase records, etc.)	
☐ Customer contact information (record of customer's contact with multiple touch points)	
☐ Employee data (personnel records)	
☐ Ad response data (customers arriving from specific ads or other referrals)	
☐ Call center sales	
☐ Customer service data (complaints, returns, etc.)	

from a list of CRM technology applications the items that their organization was using. We aggregated the marked items to measure CRM technology use.

Results

Measurement Model Results

We ran a confirmatory factor analysis (CFA) to assess the measurement properties of the reflective latent constructs.[2] Because there were a large number of indicators for the latent constructs (46), we ran a CFA on each construct.[3] Table 2 presents the CFA results. The chi-square statistics were significant. However, because of its sensitivity to sample size, we used other recommended goodness-of-fit statis-

TABLE 2
Measurement Model Results for Reflective Measures

Construct	Number of Indicators	Construct Reliability	Chi-Square (d.f.)	GFI (AGFI)	Bentler's Normed Fit Index	Bollen's Normed Index	Rescaled Normed Index	Tucker–Lewis Index
Customer relationship orientation	4	.941	2.580 (2)	.992 (.959)	.997	.999	1.000	.993
Customer-centric management system	6	.863	35.906 (9)	.929 (.834)	.919	.938	.937	.895
Information reciprocity	4	.912	.927 (1)	.997 (.973)	.997	.979	1.000	1.000
Information capture	5	.840	14.023 (5)	.968 (.904)	.960	.974	.973	.973
Information integration	4	.886	6.178 (2)	.982 (.908)	.983	.948	.988	.964
Information access	4	.923	8.215 (2)	.975 (.872)	.983	.983	.981	.940
Information use	7	.803	49.869 (14)	.919 (.837)	.906	.931	.930	.895
Customer relationship performance[a]	2	.795	—	—	—	—	—	—
Competitive intensity[a]	3	.928	—	—	—	—	—	—
Environmental dynamism	5	.889	13.653 (5)	.962 (.885)	.964	.977	.977	.953

[a] We do not report goodness-of-fit indexes for constructs with three or fewer indicators, because they have a perfect fit.

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[2] Because the technology use measure is an index, it is not subjected to tests of reliability and CFA.

[3] We ran a ten-factor correlated model (with all the 44 indicators) and a ten-factor model with relational information processes as a second-order factor (again, with all the 44 indictors). The goodness-of-fit indexes for both of these models were acceptable, and indicator loadings were similar to those we obtained from a separate CFA of each construct. However, given the size of the sample compared with the number of indicators, we chose the analysis we report in the article. That is, we report the CFA of each construct.

tics to evaluate the fit of various models and suggest acceptable fit for all the constructs. The construct reliabilities ranged from .80 to .94 and were well above the recommended values. As we show in Table 1, the loadings range from .50 to greater than .90 (with most exceeding .70), suggesting that the indicators of the construct are acceptable.

We conceptualized relational information processes as a second-order construct with five subfactors, or dimensions. We examined the second-order factor structure by conducting a one-factor CFA on the summed scores of the respective five first-order constructs. The model fit was good, lending support to the second-order factor conceptualization for relational information processes ($\chi^2 = 17.12$, degrees of freedom [d.f.] = 5; goodness-of-fit index [GFI] = .96, adjusted goodness-of-fit index [AGFI] = .88, Bentler and Bonett's normed index = .96, Bollen's normed index = .91, and Tucker–Lewis index = .97).

We assessed discriminant validity using the procedures that Bagozzi (1980) and Fornell and Larcker (1981) suggest. We formed scores for each of the reflective measures by summing the respective indicators, and we fit a six-factor correlated model. We fixed the loadings of the single indicator factor models at the square root of the factor's reliability. We used the summed scores of each of the five information factors as indicators of the relational information processes construct. These results appear in Table 3. The goodness-of-fit indexes suggest an acceptable fit for the correlated model. For Bagozzi's procedure, we fixed correlations between each pair of constructs at one, and we used the differences in chi-square degrees of freedom to determine whether these correlations were different from one. The chi-square difference tests for all pairs of constructs except one were significant at $p < .05$ (the customer relationship orientation–customer-centric management system pair was significant at $p < .08$). To implement Fornell and Larcker's procedure, we computed the shared variance between the indicators of a construct and the construct. We also computed the shared variance between two constructs. As evident from Table 4, the shared variances of all constructs and their indicators are greater than the shared variances between all pairs of constructs. Overall, the results offer support for discriminant validity among the constructs.

TABLE 3
Discriminant Validity Results: Loadings and Construct Reliabilities

Constructs	Loadings
Relational Information Processes	(.875)[a]
•Information reciprocity	.700
•Information capture	.777
•Information integration	.835
•Information access	.699
•Information usage	.803
Customer Relationship Orientation	.970[b]
Customer-Centric Management System	.929[b]
Environmental Dynamism	.943[b]
Competitive Intensity	.963[b]
Customer Relationship Performance	.892[b]

[a] The value is construct reliability.
[b] Loadings are fixed to square roots of respective reliabilities.
Notes: Goodness-of-fit indexes: $\chi^2 = 61.344$, d.f. = 25 ($p = .000$); GFI = .928, AGFI = .841, Bentler and Bonett's normed fit index = .912, Bollen's normed index = .841, rescaled normed index = .944, and Tucker–Lewis index = .900.

Common Method Bias

Common method variance could bias the findings when both independent and dependent measures are obtained from the same source, as is the case in this study. We assessed method bias using the procedure that Lindell and Whitney (2001) recommend.[4] According to their procedure,

TABLE 4
Correlations Among Constructs and Discriminant Validity

			Constructs					
Constructs	**Mean**	**Standard Deviation**	**RIP**	**CRO**	**CCM**	**ED**	**CI**	**CP**
RIP	112.17	25.69	**.585**	.434	.441	.077	.101	.294
CRO	28.23	6.32	.612	**.941**	.607	.064	.136	.423
CCM	25.19	7.41	.596	.706	**.863**	.076	.117	.349
ED	22.74	7.98	.249	.246	.253	**.889**	.050	.063
CI	16.51	6.86	.301	.352	.315	.214	**.928**	.008
CP	10.80	4.29	.461	.564	.492	.216	.081	**.796**
CTU	4.77	7.98	.126	.084	.110	.058	.032	.052

Notes: Diagonal entries are shared variances between the indicators and their respective constructs, entries below the diagonal are correlations, and entries above the diagonal are shared variance among the respective constructs obtained from CFA. RIP = relational information processes, CRO = customer relationship orientation, CCM = customer-centric management system, ED = environmental dynamism, CI = competitive intensity, CP = customer relationship performance, and CTU = CRM technology use.

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[4] As a reviewer recommended, we also used Harmon's one-factor test (in accordance with Podsakoff and Organ's [1986] article) to assess common method bias. Ten factors had eigenvalues greater than one, and together they accounted for 74% of the total variance; the first factor accounted for 34% of the total variance. A limitation of Harmon's one-factor test is that there are no guidelines on how high the variance of the first factor should be for common method bias to be detected. In addition, the first factor would contain variance that is due to methods bias and to the traits, and it is not possible to isolate the variance attributable to the method in this test. Velicer (1976) shows that the minimum value of the mean absolute squared value of the partial correlations (after the effect of the common factors is removed) suggests the

a marker variable or a scale that is theoretically unrelated to other scales should be included in the questionnaire so that there is a priori rationale for this scale to have zero correlation with other scales. If this is not done (as is the case in our study), the best alternative is to identify a scale that has a small correlation with the dependent construct. The correlation of this scale with the endogenous construct scale is considered indicative of method variance. Therefore, after this scale is identified, its correlation with the endogenous construct is used to partial out its effect from other correlations to assess the extent of method variance. In addition, Lindell and Whitney suggest a sensitivity analysis in which 95% and 99% confidence intervals are constructed for the correlations of the marker scale, and the procedure is repeated.

As the marker scale, we used competitive intensity, which had a nonsignificant correlation of .081 with customer relationship performance. Table 5 gives the results of the procedure and shows that the partial correlations between the dependent and the independent variables are high and significant, suggesting that these correlations are not merely due to common method bias. Note also that method variance is unlikely to influence correlations involving the CRM technology use measure because respondents simply indicate the current functions of their CRM technology system. Furthermore, the interaction of CRM technology use and relational information processes should have minimal method bias.

TABLE 5
Common Method Bias Analysis

Constructs	RIP	CRO	CCM	ED	CI	CP
RIP	—					
CRO	.612* .578* .534* .504*	—				
CCM	.596* .560* .514* .484*	.706* .680* .647* .624*	—			
ED	.249* .183* .097 .040	.246* .180* .094 .037	.253* .187* .102* .046*	—		
CI	.301* .239* .160* .107	.352* .296* .221* .172*	.315* .255* .177* .125*	.214* .145* .055 –.004	—	
CP	.461* .414* .352* .312*	.564* .526* .476* .443*	.492* .447* .389* .351*	.216* .147* .058 –.002	.081[a]	

*$p < .05$ (one-tailed test).
[a] This is a marker correlation.
Notes: The first value in the cell is the correlation, the second value is the correlation corrected for method bias, the third value is 95% sensitivity analysis, and the fourth value is 99% sensitivity analysis. RIP = relational information processes, CRO = customer relationship orientation, CCM = customer-centric management system, ED = environmental dynamism, CI = competitive intensity, and CP = customer relationship performance.

Hypotheses Testing

We estimated the following equations using least squares regression to test hypotheses H_1–H_4.

$$(1)\quad RIP = \beta_0 + \beta_1 CRO + \beta_2 CCM + \beta_3 CI + \beta_4 ED + \varepsilon_1;$$

$$(2)\quad CP = \beta_{01} + \beta_{11} RIP + \beta_{21} CTU + \beta_{41} CI + \beta_{51} ED + \varepsilon_{11}; \text{ and}$$

$$(3)\quad CP = \beta_{01} + \beta_{11} RIP + \beta_{21} CTU + \beta_{31} RIP \times CTU + \beta_{41} CI + \beta_{51} ED + \varepsilon_{11},$$

where

RIP = relational information processes,
CRO = customer relationship orientation,
CCM = customer-centric management system,
CI = competitive intensity,
ED = environmental dynamism,
CP = customer relationship performance, and
CTU = CRM technology use.

We used a stepwise regression approach to test the interaction hypothesis in Equation 3. We created the interaction term after mean centering the data. When we included the interaction term in Equation 2 to form Equation 3, the adjusted R^2 for the estimation increased from .21 to .24, and the partial F statistic ($6.14_{1,\,146}$) was significant at $p < .05$. Tests of multicollinearity provided no evidence of the same, because none of the variance inflation factors exceeded 10. The results from the estimation appear in Table 6.

In H_1 and H_2, we hypothesized positive associations for customer relationship orientation and customer-centric management system, respectively, with relational information processes; these were supported (.36, t-value = 3.97; .31, t-value = 3.47). In addition, we found support for H_3 (.46, t-value = 5.85), confirming that relational information processes are positively associated with customer relationship performance. We found support for the mediating role of relational information processes on the association between the antecedents (i.e., customer relationship orientation and customer-centric management system) and customer relationship performance using the Sobel (1982) test, which is in line with the procedures that Baron and Kenny (1986) recommend. The Sobel test showed that relational information processes mediate the relationship between customer relationship orientation and customer relationship performance (t-value = 2.21, $p < .03$) and between customer-centric management system and customer rela-

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number of factors to retain. Therefore, we used the mean absolute squared error of the partial correlations to assess which factor structure is better, and its value was the lowest for ten factors (.0187). We also computed the root mean square of the off-diagonals using an exploratory factor analysis. For the one-factor model, the root mean square of the off-diagonals is .1142, whereas for the ten-factor model, it is .0264. In other words, the variance remaining after the removal of the variance attributable to common method bias is substantial and is explained better using a ten-factor solution.

TABLE 6
Result of Regression Analysis

Predictor Variables	Hypothesis	Equation 1 Dependent Variable: RIP Standardized Coefficient (t-Value)	Equation 2 Dependent Variable: CP Standardized Coefficient (t-Value)	Equation 3 Dependent Variable: CP Standardized Coefficient (t-Value)
CRO	H_1	.36* (3.97)	—	—
CCM	H_2	.31* (3.47)	—	—
RIP	H_3	—	.46* (5.85)	.48* (6.18)
CTU		—	–.01 (.134)	–.04 (.60)
RIP × CTU	H_4	—	—	.19* (2.52)
CI	—	.07 (1.08)	–.08 (1.06)	–.11 (1.43)
ED	—	.07 (.96)	.12 (1.59)	.10 (1.31)
Adjusted R^2		.42	.21	.24
F $\text{statistic}_{(\text{d.f.})}$		$28.48_{(4, 146)}^*$	$10.92_{(4, 146)}^*$	$10.32_{(5, 145)}^*$

*$p < .05$.

Notes: RIP = relational information processes, CRO = customer relationship orientation, CCM = customer-centric management system, ED = environmental dynamism, CI = competitive intensity, CP = customer relationship performance, and CTU = CRM technology use.

tionship performance (t-value = 2.96, $p < .003$).[5] Although not hypothesized, we examined and found no significant difference between business-to-business and business-to-consumer firms in their usage of relational information processes ($p = .18$). In addition, we did not observe any significant difference between goods and services firms in the extent of their use of relational information processes ($p = .25$).

In H_4, we predicted that CRM technology use enhances the influence of relational information processes on customer relationship performance; we found support for this (.19, t-value = 2.52). We conducted simple slope analysis (Aiken and West 1991) to clarify the nature of this interaction. As we show in Figure 2, relational information processes enhance customer relationship performance when CRM technology use is both low and high. However, as relational information processes go from low to high, customer relationship performance improves more rapidly for a high level of CRM technology use than for a low level of CRM technology use. The slope of the association between relational information processes and customer relationship performance was .03 (t-value = 2.94) when CRM technology use was low. The slope for the same association was .06 (t-value = 6.03) when CRM technology use was high. Customer relationship performance at low values of relational information processes was inferior when CRM technology use was higher than when it was lower (see Figure 2; M = 9.40 versus M = 10.41).[6]

We also examined whether the use of CRM technology provided differential customer relationship performance advantage for business-to-consumer and business-to-business SBUs and found no significant difference ($p = .86$). In addition, we found no significant difference in the influence of CRM technology use on the customer relationship performance of goods and services firms ($p = .14$). Thus, our results suggest that business-to-business and services SBUs do not enjoy any advantage over their business-to-consumer and goods counterparts, respectively, in terms of the influence of CRM technology use on customer relationship performance. Finally, the covariates (i.e., environmental dynamism and competitive intensity) did not have any significant effects on relational information processes and customer relationship performance.

Discussion

Although extant marketing literature has emphasized the importance of information processes (e.g., Menon and Varadarajan 1992; Moorman 1995), information processes relevant to CRM have not received adequate attention.

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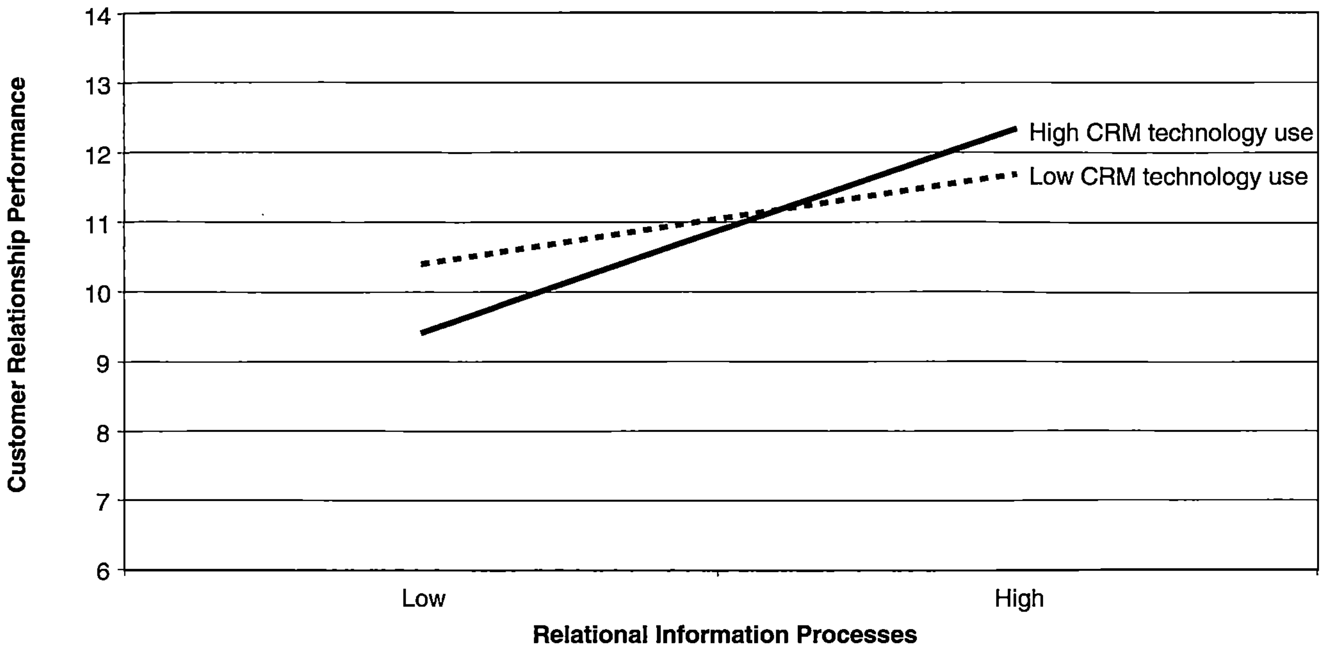
[5] We also informally examined the mediation effect using the regression tests that Baron and Kenny (1986) recommend. These tests involve regressing (1) the antecedents on the mediating variable, (2) the mediating variable on the outcome variable, (3) the antecedents on the outcome variable, and (4) the antecedents and mediating variable on the outcome variable. For mediation to be established, the antecedents should be related to the mediating variable, the mediating variable should be related to the outcome variable, and the effect of the antecedents on the outcome variable should be diminished by the mediating variable. In our analysis, all the conditions were met, and the tests found that the influence of customer-centric management system on customer relationship performance was completely mediated through relational information processes, and the influence of customer relationship orientation was partially mediated. In the presence of relational information processes, the influence of customer-centric management system on customer relationship performance was rendered insignificant, and that of customer relationship orientation was diminished ($\beta = .39$ versus .46 without relational information processes as the mediating variable). We used all the variables, including the covariates in the regression analysis.

[6] Because only a part of our sample used CRM technology, as a reviewer suggested, we tested whether this result was driven by outlying values of CRM technology use. Using a stem-and-leaf plot, we identified seven outlying observations of CRM technology use. We estimated the model after removing these observations from the sample and obtained results consistent with those of the full sample. We also reestimated the equation after removing one multivariate influential observation with a standardized residual greater than 3. The results in this case were also consistent with Table 6.

FIGURE 2
Slope Analysis: The Moderating Effect of CRM Technology Use on the Association Between Relational Information Process and Customer Relationship Performance



Notes: We mean centered all measures for the interaction analysis.

Thus, an important contribution of this article is the conceptualization and measurement of relational information processes and the demonstration of its antecedents. We also developed a measure for CRM technology use and showed that CRM technology use moderates the influence of relational information processes on customer relationship performance. Overall, our findings support the contention that relational information processes provide guidelines to help firms manage customer information and interact with customers in ways that are consistent with the demands of CRM. These processes are necessary to enhance customer relationship performance while CRM technology performs a supportive role. Reinartz, Krafft, and Hoyer (2004) speculate that CRM technology use may even have a negative effect on performance, and our study implies that this could occur when appropriate relational information processes are not implemented.

To clarify our results further for relational information processes and CRM technology use, we conducted e-mail or telephone follow-up interviews with respondents in 19 of the 48 firms in the sample that had implemented CRM technology. Several respondents that mentioned that their firm was successful with its use of CRM technology indicated that the user groups played important roles in planning for the implementation of CRM technology, thus ensuring that their information needs and processes received dominant consideration. The respondents in firms that expressed frustration with CRM technology use had their implementation effort driven by technology and not by user needs. In addition, in some firms, even if the planning was done collaboratively, the user groups found it difficult to adapt to a new way of working. In many cases, the respondents cited that the learning curve was steep and that they needed to retrace their steps and redesign processes and software to ensure that the relationship marketing effort became more effective. Some organizations tried unsuccessfully to implement many aspects of the technology on the basis of the tools that were available. Subsequently, they scaled back the technology implementation, prioritized a few specific applications, and had better success.

In the interviews, respondents also stated that implementing CRM technology enabled them to communicate much better with their customers and to help customers manage their own needs (information reciprocity), helped capture data more effectively when there were large numbers of customers (information capture), enabled customer service employees to access consolidated customer information (information integration and access), and enhanced senior management's decision-making ability by providing a "dashboard" of customer information and by identifying critical problem areas (information integration, access, and use). Some of these firms were sophisticated users of CRM technology; this was apparent in the comments from one respondent: "It will track all of the interactions—you call to complain, you called the help desk, you don't like this, you don't like that.... It allows me to do analysis on what is [the] average length a prospect is in our system before they're revenue producing, how much revenue by customer, it does all these cool pie charts and graphs.... It's knowledge capital." However, several of the respondents revealed that their firm was using CRM technology in a limited way, focusing largely on information capture and access.[7]

Managerial Implications

Importance of relational information processes. This study identifies the key relational information processes that should be implemented by firms that opt to pursue CRM. Delineation of relational information processes enables managers to track and evaluate the information routines that are relevant for CRM. Furthermore, this article explores key antecedents of relational information processes, helping firms assess whether their customer relationship orientation and customer-centric management system, both of which managers can control, are consistent with the demands of relationship management. Designing effective relational information processes and enhancing them using CRM technology could help a firm develop customer-relating capability (see Day 2000).

Implementation of CRM technology. Firms should deploy CRM technology to enhance the effectiveness of relational information processes. Although CRM technology use by itself is not a panacea to CRM problems (see also Rigby, Reichheld, and Schefter 2002), in the presence of properly designed relational information processes, the technology promotes customer relationship performance. Customer relationship management technology is a complex suite of applications. Implementing this technology successfully to improve customer relationship performance requires a thorough understanding of relational information processes within the organization. Therefore, the key decision that managers who are deliberating the use of CRM face is not whether to implement CRM technology but whether their organization could benefit from relational information processes. In addition, the interview data suggest that organizations benefit from adopting a multistage approach to CRM technology implementation to enable employee learning.

Research Implications

We delineate the information processes that help organizations develop sustained bonds with their customers. In doing so, this study extends and links the relationship marketing and market information–processing literature streams. In addition, we draw a distinction between CRM, a process long advocated by marketing academics, and CRM technology, its narrower connotation, which has been widely deployed in organizations. The illumination of the distinctive roles of relational information processes and CRM technology in the pursuit of CRM strategy helps advance the relationship marketing research stream.

Limitations and Future Research Directions

This study is based on self-reported data and could be constrained by common method bias, though Lindell and Whitney's (2001) procedure shows that this influence is likely to be minimal. Obtaining objective performance data could have further ameliorated this potential problem. However, because our focus is on whether relational information processes and CRM technology use provide a differential advantage, we require relative performance data for the customer relationship performance construct rather than absolute performance data. However, relative customer relationship performance data are not easily available from public sources.[8]

Our findings should be evaluated against the background that several of the CRM technology users among the respondents were in the early stages of adoption and, thus, possibly still learning to use the complex technology. Despite this, we found support for the ability of CRM technology to enhance customer relationship performance in conjunction with relational information processes. However, to confirm our findings further, additional research with firms at later stages of CRM technology adoption would be beneficial, as would be research with a larger sample of firms that have deployed CRM technology. Notably, Day and Van den Bulte (2002) find that CRM deployment is unlikely to contribute to customer-relating capability after a minimum competency level is reached. We tested this and found no support for the diminishing positive influence of CRM technology use on customer relationship performance. As we noted, however, it is possible that firms using CRM technology in our sample were still in the learning stage and, therefore, had not reached the minimum competency level. Our study provides only a snapshot of ongoing processes; a longitudinal study to assess the role of experience with CRM technology use would help clarify this issue.

Reinartz, Krafft, and Hoyer (2004) do not find support for the moderating influence of CRM technology use on the relationship between the CRM process and financial performance, though we found that CRM technology moderates the association between relational information processes and customer relationship performance. The difference in the results from these studies could be attributed to the effect of CRM technology use possibly materializing more easily and earlier on intermediate process measures, such as customer relationship performance, than on financial performance. As such, and as Reinartz, Krafft, and Hoyer note, the result might change over time after firms become more competent in their use of CRM technology. In addition, unlike financial performance measures, customer relationship performance does not consider the cost implications of implementing CRM technology. Thus, the return on investment of CRM technology use deserves further research attention, with an assessment of the costs of implementing the technology using more comprehensive measures of financial performance.

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[7] As a reviewer recommended, we empirically examined the moderating influence of CRM technology use on the association between individual dimensions of relational information processes and customer relationship performance. We ran five separate regressions for this purpose and observed that CRM technology use enhanced the influence of information reciprocity (t-value = 3.71), information access (t-value = 2.32), and information use (t-value = 2.77), but it did not enhance the influence of information capture (t-value = 1.187) and information integration (t-value = 1.549) on customer relationship performance. All five dimensions of relational information processes had significant main effects on customer relationship performance ($p < .05$). The differential influence of CRM technology use could be a reflection of the relative skill of firms to leverage CRM technology to enhance the influence of various dimensions of relational information processes on customer relationship performance.

[8] We thank a reviewer for this suggestion.

Because of data limitations, we could not evaluate the differential influence of aspects of CRM technology use, such as sales support, marketing support, and service support, on customer relationship performance. Thus, further research is required to examine this. Other opportunities for research are provided by our conceptualization and measurement of relational information processes. For example, assessment of the role of relational information processes on relationship learning (Selnes and Sallis 2003) and customer-relating capability (Day 2000) could potentially enrich the relationship marketing literature.

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Raji Srinivasan & Christine Moorman

Strategic Firm Commitments and Rewards for Customer Relationship Management in Online Retailing

Academic studies offer a generally positive portrait of the effect of customer relationship management (CRM) on firm performance, but practitioners question its value. The authors argue that a firm's strategic commitments may be an overlooked organizational factor that influences the rewards for a firm's investments in CRM. Using the context of online retailing, the authors consider the effects of two key strategic commitments of online retailers on the performance effect of CRM: their bricks-and-mortar experience and their online entry timing. They test the proposed model with a multimethod approach that uses manager ratings of firm CRM and strategic commitments and third-party customers' ratings of satisfaction from 106 online retailers. The findings indicate that firms with moderate bricks-and-mortar experience are better able to leverage CRM for superior customer satisfaction outcomes than firms with either low or high bricks-and-mortar experience. Likewise, firms with moderate online experience are better able to leverage CRM into superior customer satisfaction outcomes than firms with either low or high online experience. These findings help resolve disparate results about the value of CRM, and they establish the importance of examining CRM within the strategic context of the firm.

The study and practice of customer relationship management (CRM) has experienced explosive growth over the past decade. Extant research provides two sets of insights into the relationship between a firm's CRM investments and its performance. The first set focuses on CRM as expenses. Gupta, Lehmann, and Stuart (2004) find that customer acquisition and retention expenses have a significant, positive effect on firm value. Other studies report a positive relationship between a firm's CRM technology investments and CRM performance (Jayachandran et al. 2005; Mithas, Krishnan, and Fornell 2005). The second set of studies envisions CRM as a firm capability and, again, reports its positive effects on both CRM and business performance (Day and Van den Bulte 2002; Reinartz, Krafft, and Hoyer 2004).

However, these findings are in contrast to increasing practitioner skepticism of CRM expenditures. As Day and Van den Bulte (2002) note, practitioners report that the majority of CRM initiatives fail to meet expectations (Dignan 2002). Indeed, CRM has been decried as one of the biggest blunders of the early twenty-first century (*Infoworld* 2001); there is evidence that most CRM initiatives do not deliver the anticipated return on investment (Gartner Group 2003).

This divergence in the effectiveness of CRM across theory and practice is both troubling and intriguing. It is troubling because though CRM as a way to manage customers is here to stay, increasing skepticism among practitioners signals that CRM will face intense scrutiny and accountability. From a theoretical perspective, the divergence is intriguing because it implies that the observed variability in CRM performance may be explained by moderating factors.

Considering possible explanations for the observed variability, researchers have examined (1) CRM data-related techniques (e.g., Ansari and Mela 2003), (2) marketing strategies for customer profitability (e.g., Reinartz and Kumar 2000, 2003; Rust, Lemon, and Zeithaml 2004; Rust and Verhoef, 2005; Venkatesan and Kumar 2004), (3) the balance between customer acquisition and retention efforts (e.g., Reinartz, Thomas, and Kumar 2005), and (4) effective CRM implementation (Day and Van den Bulte 2002; Reinartz, Krafft, and Hoyer 2004). Although impressive in scope, extant research offers few insights on the strategic choices that are associated with the effective deployment of CRM. This is remiss because strategic conduct influences the effect of customer satisfaction on firm value (Anderson, Fornell, and Mazvancheryl 2004).

We address this gap in the literature. Specifically, we ask whether the effect of a firm's CRM on CRM performance, as measured by customer satisfaction ratings, is influenced by its prior strategic commitments. Strategic commitments can involve any long-term firm decision, such as the choice to enter specific markets or invest in products, brands, channels, or partnerships. Using the empirical context of the emerging online retailing market, we investigate whether CRM performance is weakened or strengthened by two relevant prior strategic commitments of the retailer: (1) bricks-and-mortar or offline experience and (2) online entry timing. We test our predictions using manager ratings of

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CRM and strategic commitments and customer ratings of satisfaction in 106 online retailers.

Predictions

CRM and Firm Bricks-and-Mortar Experience

Bricks-and-mortar experience refers to the firm's level of offline experience before its online entry. Bricks-and-mortar experience is a form of strategic commitment that reflects the retailer's incumbency in offline retailing. Traditionally, studies of incumbency have focused on an incumbent's ability to innovate an emerging technology (e.g., Chandy and Tellis 2000). In this study, we examine the effects of incumbency on the effectiveness of a firm's CRM investments in an emerging market. Our review of the literature suggests that there are both customer and firm explanations for this question.

Customer factors. Several customer-based factors imply that a firm's bricks-and-mortar experience may strengthen the effect of its CRM on performance. First, bricks-and-mortar retailers have existing supply chain infrastructures, which should improve fulfillment efficiency, a key success factor in online environments. Second, bricks-and-mortar online retailers have access to extensive customer information from their offline operations, which may improve their ability to deploy CRM effectively to serve online customers. Third, bricks-and-mortar firms' offline brand and relationship equities can be leveraged in their online operations (Geyskens, Gielens, and Dekimpe 2002). These market-based assets (Srivastava, Shervani, and Fahey 1998) may help the firm establish strong online customer relationships. For example, bricks-and-mortar operations may serve as a "source of advertising to pre-sell merchandise" (Alba et al. 1997, p. 48).

Finally, bricks-and-mortar retailers enable online customers the option to experience products before they purchase them, which reduces customers' uncertainty and helps them identify products that closely match their preferences, thus increasing their satisfaction (Alba et al. 1997). Customers may also prefer returning products purchased from online retailers to the offline store, saving shipping costs. Thus, the bricks-and-mortar experience of retailers can complement their online operations and increase the returns on their online CRM investments.

Firm factors. Although there are positive effects involving customer-based factors, several features of bricks-and-mortar online retailers suggest the opposite. First, incumbents with a long history of offline retailing may be concerned about cannibalizing their bricks-and-mortar operations (Alba et al. 1997; Lynch and Ariely 2000). As Ghosh (1998, p. 127) notes, "Established businesses that ... have carefully built brands and physical distribution relationships risk damaging all they have created when they pursue commerce in cyberspace." As a result, bricks-and-mortar firms may be less aggressive in their online CRM efforts. As Kanter (2001, p. 92) notes, "Ask big companies about their goals for the Web, for example, and they are likely to reply, 'Cautious testing.' Ask dot-coms and they declare, 'Total world domination!'"

Second, bricks-and-mortar experience of online retailers may be viewed as an organizational routine involving tacit knowledge (Nelson and Winter 1982). Transfers of such tacit knowledge are often characterized by stickiness and misapplication (Szulanski 1996). Thus, bricks-and-mortar retailers may inappropriately transfer knowledge from their offline operations to their online operations, negatively affecting online performance. Indeed, because offline and online business models are distinct, bricks-and-mortar retailers may need to unlearn what led to their offline success in the design of their online CRM systems (Kanter 2001).

Prediction. Integrating the evidence, we expect that moderate levels of bricks-and-mortar experience should produce the highest performance returns on a firm's CRM investments. Moderate bricks-and-mortar experience provides access to key market-based assets without concerns about cannibalization or the well-entrenched routines that may create incumbency inertia. Conversely, low bricks-and-mortar experience offers only freedom from the inhibiting aspects of incumbency, and high bricks-and-mortar experience offers only access to customer relationships and knowledge. Thus:

> H_1: The positive effect of CRM on performance is stronger for firms with moderate bricks-and-mortar experience than for firms with low or high levels of bricks-and-mortar experience.

CRM and Firm Online Experience

A retailer's decision to enter online markets represents an important strategic commitment. We use the term "firm online experience" to capture the firm's entry-timing strategy, and we define it as the firm's online experience relative to the first entrant in the industry. Several aspects of online retailing, especially in its early years, suggest that the returns on a firm's CRM investments are influenced by its entry timing. In line with H_1, we offer both customer and firm explanations to derive our prediction.

Customer factors. Some aspects of online customers imply that a firm's online experience may influence its performance rewards for CRM investments. Customers gain efficiencies when switching to online (from offline), which may increase switching costs, satisfaction, and loyalty (Johnson, Bellman, and Lohse 2003; Zauberman 2003). Thus, early entrants may be able to extract the greatest performance rewards from their CRM investments. However, this argument overlooks a key feature of emerging markets; namely, early markets are different from the mass market in terms of customers' willingness to take risks (e.g., Rogers 1995). In addition, customers in early markets have weaker expectations given the nascent status of these markets (Boulding et al. 1993). Thus, early entrants that establish customer relationships with early adopters may be disadvantaged when targeting later adopters (Degeratu, Rangaswamy, and Wu 2000). This is problematic because most customers enter the market during the middle and later stages of market evolution. Thus, firms may expect the strongest response to their CRM investments when they enter in the middle stages of market evolution, not in the earlier or later stages.

Firm factors. Several aspects related to a firm's online experience suggest that there are advantages for later entrants to achieve higher performance from their CRM investments. First, online retailing is a new technology that is characterized by firm (e.g., changes in Web design) and customer (e.g., learning how to use the online interface) experimentation. Indeed, online retailers continually reengineer their strategies to meet the evolving needs of online customers (Wind and Mahajan 2002). Thus, later entrants may have an advantage over early entrants in configuring cost-effective CRM systems.

Second, emerging markets, such as online retailing, are characterized by technological turbulence. For example, the performance-price ratios of online CRM technology increased dramatically over time, such that later entrants implemented more cost-effective CRM investments than early entrants. As such, early online entrants with large investments in vintage CRM technology incur considerable upgrade costs to remain competitive (The Gartner Group 2003). In turn, early entrants' unwillingness to incur these costs creates gateways for later entrants (Golder and Tellis 1993).

Prediction. Integrating these arguments, we expect that firms with moderate online experience receive the greatest rewards for CRM investments. We argue that when online entry moves from moderate to early, there may be reductions in the effectiveness of CRM investments due to differences in online customer cohorts or to evolving information technologies that are costly to upgrade. Conversely, late entrants may fail to achieve strong performance because of customer loyalty to early entrants. Thus:

> H_2: The positive effect of CRM on performance is stronger for firms with moderate online experience than for firms with low (late entrants) or high (early entrants) online experience.

Method

Data

We test the predictions using a multimethod approach in a sample of online retailers. The population consisted of online retailers that were enrolled in BizRate.com's rating service in the summer of 2001. BizRate.com inserts a pop-up HTML that invites an online retailer's customers to participate in a survey that rates their satisfaction with a retailer after completion of a purchase from the retailer. After order fulfillment by the retailer, BizRate.com sends a second e-mail survey to these customers to obtain customer satisfaction ratings.

BizRate.com sent a Web link by e-mail to the senior managers of firms enrolled in its service on May 1, 2001, inviting them to participate in our study. In return, firms were promised information about how their firm compared with other firms on key variables. A total of 187 of the 978 online firms responded to the survey, for a response rate of 19%. Key informants, who averaged 46 months' tenure, reported high levels of confidence (5.80/7.00) in the information they provided. The average firm size in the sample was 202 employees (standard deviation [s.d.] = 747), and the average age of online operations was 41 months (s.d. = 24); in addition, most retailers had offline experience (63%).

To investigate selection bias, we randomly selected 100 nonrespondent firms and compared them with the respondent firms on variables obtainable from public sources: (1) publicly held versus privately held and (2) bricks-and-mortar operations or not. We found no significant differences between respondent and nonrespondent firms.[1] Of the 187 retailers that responded to our survey, BizRate.com had customer satisfaction data for 106, which formed the sample for this study.[2] We found no significant differences between the 106 retailers with customer-ratings data and the 81 retailers without customer-ratings data.[3]

Customer Satisfaction Measure

We focus on customer satisfaction as the performance metric associated with CRM success. In addition to its inherent value as a key CRM performance metric, satisfaction positively affects other performance metrics, including retention, share-of-wallet, and even shareholder value (Anderson, Fornell, and Mazvancheryl 2004).

Customer satisfaction has been defined either as transaction specific or as cumulative (Boulding et al. 1993). Transaction-specific customer satisfaction is the customer's postchoice evaluative judgment of a specific purchase occasion (Boulding, Kalra, and Staelin 1999). In contrast, cumulative customer satisfaction is the customer's overall evaluation of the accumulated customer experiences with the firm (Fornell 1992). In this study, we focus on transaction-specific satisfaction. Given our emphasis on the performance of a retailer's online CRM investments, cumulative satisfaction is not appropriate, because it also includes customers' experiences with a retailer's bricks-and-mortar operations, when such operations are available.

Furthermore, because order fulfillment is a crucial element of CRM in online retailing (Reibstein 2002), we use satisfaction ratings that customers provided after order fulfillment. Specifically, BizRate.com asks, "How satisfied are you overall with this purchase experience at (merchant name) site?" on a scale that ranges from 1 ("not at all") to 10 ("highly") (see the Appendix). We averaged three months of a firm's postfulfillment customers' satisfaction ratings following our manager survey (i.e., June, July, and August 2001) to the firm level to obtain a firm-level measure of customer satisfaction performance (mean = 8.68, s.d. = .58; $\alpha = .80$).

CRM Measures

We use two measures of firm CRM. First, we use an eight-item measure that reflects the firm's CRM system investments, which we obtained from a senior manager. Six items assess the firm's investments in CRM activities (1 = "low investments," 4 = "moderate investments," and 7 = "high investments"; see the Appendix). Two items assess the online retailer's CRM acquisition and retention expenses relative to the industry (1 = "worse than industry average," 4 = "on par," and 7 = "better than industry average"; see the Appendix).[4] Together, these eight items form our measure of CRM system investments (mean = 5.04, s.d. = .93; α = .77).

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[1] Tests find no differences in public versus private ($\chi^2_{(1)} = .13$, not significant) and presence versus absence of bricks-and-mortar operations ($\chi^2_{(1)} = 2.08$, not significant) for respondent and nonrespondent firms.

[2] At the time, BizRate.com offered two plans. In the first plan (the 106 online retailers that responded to our survey), BizRate.com surveyed customers and provided firms with firm-specific customer data. In the second plan (81 firms), BizRate.com did not survey customers and offered these online retailers overall aggregate data instead.

[3] The t-tests of difference between the 87 firms (with no customer data) and the 106 firms (with customer data) were not significant on size (t = 1.612, not significant), CRM system investments (t = –.787, not significant), or CRM capability (t = –.973, not significant).

Second, we complement the measure of the firm's CRM system investments with an assessment of its CRM capability. Reinartz, Krafft, and Hoyer (2004) and Day and Van den Bulte (2002) developed measures of a firm's CRM capability. Unfortunately, these measures were not available when our survey was launched. Fortunately, these new measures are theoretically founded in the firm's market orientation, an organizationwide system for acquiring, disseminating, and responding to customer information (Kohli and Jaworski 1990). This foundation reinforces the importance of market orientation to a firm's CRM capability. However, a firm's CRM capability extends beyond its market orientation, and our use of market orientation represents a weak test of the role of a firm's CRM capability.

Given length constraints imposed by BizRate.com, we used 14 items from Kohli, Jaworski, and Kumar's (1993) 20-item market orientation scale (see the Appendix; mean = 4.92, s.d. = .78; α = .76).[5] Notably, CRM system investments and CRM capability, as measured by market orientation, are only moderately correlated ($\rho = .32, p < .01$).

Strategic Commitment Measures

Bricks-and-mortar experience. We constructed this measure from managers' reports of dates. The difference (in days) between "days since firm founding" and "days since firm Web entry," both measured from our survey date (May 1, 2001), is our measure of bricks-and-mortar experience (mean = 2161 days or 5.92 years, s.d. = 4432 days or 12.14 years).

Online experience. We also constructed this measure from manager reports of the dates of their firm's online entry. Two coders assigned firms to one of eight industries (shoes and apparel, books and music, electronics and computers, health and medicine, flowers and gifts, home and kitchen furnishings, sporting equipment, and specialty occasion [e.g., bridal, birthday, baby]). Interjudge reliability was 88%, and disagreements were resolved through discussion.

Using this industry classification, we calculated the number of days since entry for each firm from the date of the first entrant in the firm's industry. We computed the firm's online experience as the difference between the number of days since entry for the industry's first entrant and the number of days since the firm's online entry. To facilitate interpretation such that the first entrant into a category had maximum online experience and smaller numbers indicate less online experience, we subtracted the firm's online experience from May 1, 2001, our survey date (mean = 1180 days or 3.23 years, s.d. = 670 days or 1.84 years).

Control Variable

Finally, we controlled for the well-known effect of consumer experience on customer satisfaction (Johnson, Bellman, and Lohse 2003). We measured the firm's customer online experience level by the average number of online purchases the firm's customers made in the product category in the previous six months (mean = 3.19, s.d. = 1.12).

Results

Model Testing Approach

To examine the moderating effect of a firm's strategic commitments on the effectiveness of its CRM, we used a three-step hierarchical linear regression model. Step 1 included the main effects of firm CRM, strategic commitments, and the control variable. Step 2 included the two-way interactions between CRM and its strategic commitments. Finally, Step 3 included the interactions between CRM and quadratic forms of the strategic commitment variables. Thus, our model is as follows:

$$
\begin{aligned}
(1)\quad \text{SAT}_i = \text{Step 1: } & \beta_0 + \beta_1\text{CRM\_Invest}_i + \beta_2\text{CRM\_Cap}_i \\
& + \beta_3\text{BME}_i + \beta_4\text{OE}_i + \beta_5\text{Cust\_Exp}_i + \varepsilon_{1i}; \\
\text{Step 2: } & \beta_6(\text{BME}_i \times \text{CRM\_Invest}_i) \\
& + \beta_7(\text{BME}_i \times \text{CRM\_Cap}_i) \\
& + \beta_8(\text{OE}_i \times \text{CRM\_Invest}_i) \\
& + \beta_9(\text{OE}_i \times \text{CRM\_Cap}_i) + \varepsilon_{2i}; \\
\text{Step 3: } & \beta_{10}\text{BME}_i^2 + \beta_{11}\text{OE}_i^2 \\
& + \beta_{12}(\text{BME}_i^2 \times \text{CRM\_Invest}_i) \\
& + \beta_{13}(\text{BME}_i^2 \times \text{CRM\_Cap}_i) \\
& + \beta_{14}(\text{OE}_i^2 \times \text{CRM\_Invest}_i) \\
& + \beta_{15}(\text{OE}_i^2 \times \text{CRM\_Cap}_i) + \varepsilon_{3i},
\end{aligned}
$$

where SAT_i is customer satisfaction, CRM_Invest_t is CRM system investments, CRM_Cap_i is CRM capability, BME_i is bricks-and-mortar experience, OE_i is online experience, and Cust_Exp_i is customer online experience for firm i. We mean centered all explanatory variables before creating the interaction terms to avoid multicollinearity. To assess the potential threat from multicollinearity, we examined variance inflation factors and found them to be below harmful levels (Mason and Perreault 1991).

Overall Model Results

Step 1 (main effects) was significant ($F_{(5,\,100)} = 6.78$, $p < .01$). Step 2, with the two-way interactions between CRM and the strategic commitments, was also significant ($F_{(9, 96)} = 4.16$, $p < .01$) as was the change in F associated with entry of this step (change in $F_{(4, 96)} = 3.43$, $p < .01$). Finally, Step 3, with the interactions between CRM and quadratic forms of the strategic commitments, was also significant ($F_{(15, 90)} = 3.85$, $p < .01$) as was the change in F associated with entry of this step (change in $F_{(10, 90)} = 3.76$, $p < .01$). Given these results, we interpret the full model results in Table 1.

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[4] A reviewer raised the concern that the two CRM acquisition and retention expense questions may have been answered on a per customer basis so that the "better than" anchor (rating 7) may have been viewed as "lower" (more efficient); thus, a higher rating (7) may actually reflect lower CRM system investments per customer. However, because we provide explicit instructions to the respondent to evaluate these items at the overall firm level, these two items form a reliable scale together with the remaining six items; separate analysis involving the six-item scale and the two-item scale produce similar results, so this concern does not seem problematic.

[5] We also estimated the model with Homburg and Pflesser's (2000) measure of market-oriented organizational culture, and we obtain similar results.

The results indicate that the firm's CRM system investments ($b = .30$, $p < .01$) and CRM capability, in the form of market orientation ($b = .29$, $p < 0.05$), positively affect customer satisfaction.[6] In addition, the control variable, customer online experience, negatively affects customer satisfaction ($b = -.28$, $p < .01$). We conjecture that increasing consumer experience may increase customers' "should" expectations, producing a negative effect (Boulding et al. 1993). We next examine tests of H_1 and H_2 pertaining to the moderating effects of bricks-and-mortar experience and online experience on the rewards for CRM.

CRM and Firm Bricks-and-Mortar Experience (H_1)

In H_1, we predict an inverted U-shaped effect of a firm's bricks-and-mortar experience on CRM effectiveness. We first discuss the results with respect to a firm's CRM system investments, followed by its CRM capability.

CRM system investments. The first-order interaction term ($BME_i \times CRM\_Invest_i$) is positive and significant ($b = .20$, $p < .10$), and the second-order interaction term ($BME_i^2 \times CRM\_Invest_i$) is negative and significant ($b = -.80$, $p < .01$), in support of H_1. To determine the nature of the moderating effect, we examine the returns on CRM system investments at different levels of bricks-and-mortar experience. To do so, we use the unstandardized parameter estimates from Equation 1 (not the standardized estimates we report in Table 1) that are pertinent to bricks-and-mortar experience and CRM system investments to calculate and plot the estimated coefficients of CRM system investments for different levels of bricks-and-mortar experience in Figure 1.[7]

As expected, the inverted U shape in Figure 1 indicates that moderate bricks-and-mortar experience strengthens the effects of a firm's CRM system investments more than low and high levels of bricks-and-mortar experience.[8] Approximately 12 years of bricks-and-mortar experience maximizes customer satisfaction returns on CRM system investments (.22). Additional analysis indicates that CRM returns drop below the average return of the firms in our sample (.19) when bricks-and-mortar experience is less than 4 years (.17) and greater than 20 years (.18).[9] In summary, the significant parameter estimates of the first-order ($b = .20$, $p < .10$) and the second-order ($b = -.80$, $p < .01$) interaction terms, combined with the inverted U-shaped relationship of the returns on CRM system investments at different levels of bricks-and-mortar experience, support H_1.

TABLE 1
Online Retailers' Strategic Commitments to and Rewards for CRM: Model Results

Variables	Standardized Coefficients
Step 1[a]	
CRM system investments	.30***
CRM capability	.29**
Bricks-and-mortar experience	–.67***
Online experience	.13
Customer online experience	–.28***
Step 2[b]	
Bricks-and-mortar experience × CRM system investments	.20*
Bricks-and-mortar experience × CRM capability	–.26
Online experience × CRM system investments	.28***
Online experience × CRM capability	.17
Step 3[c]	
Bricks-and-mortar experience^2	.14***
Online experience^2	–.24***
Bricks-and-mortar experience^2 × CRM system investments	–.80**
Bricks-and-mortar experience^2 × CRM capability	–.10
Online experience^2 × CRM system investments	–.25**
Online experience^2 × CRM capability	.04
Overall Intercept	17.43***
Overall F associated with complete model (degrees of freedom = 15,90)	3.85***
Overall R^2 associated with complete model	.39***

*$p < .10$.
**$p < .05$.
***$p < .01$.
[a]The results from the three-stage model are shown.
[b]The change-in-F associated with the introduction of the interaction of the strategic commitment variables (e.g., bricks-and-mortar experience) and with the CRM investment variables is significant (change-in-$F_{(4, 96)} = 3.43$, $p < .01$).
[c]The change-in-F associated with the introduction of the squared strategic commitment variables (e.g., bricks-and-mortar experience^2) and their interaction with the CRM investment variables is significant (change-in-$F_{(10, 90)} = 3.76$, $p < .01$).

CRM capability. We next examine the effect of firm bricks-and-mortar experience on the effects of its CRM capability. Notably, both the first-order ($BME_i \times CRM\_Cap_i$) ($b = -.26$, not significant [n.s.]) and second-order ($BME_i^2 \times CRM\_Cap_i$) ($b = -.10$, n.s.) interactions are not significant. Combined with the positive main effect of CRM capability (b = .29, $p < .05$), these results suggest that the effect of a firm's CRM capability on customer satisfaction is impervious to its bricks-and-mortar experience.

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[6] Note that the regression coefficients for the first-order terms in mean-centered models are conditional effects at mean values of the other predictor variables and must be interpreted with caution (Irwin and McClelland 2001). As we subsequently show in Figure 1 and Figure 2, CRM system investments have a positive effect on performance, except at low online experience.

[7] Rearranging Equation 1, the parameter estimate for CRM_Invest_i is $(\beta_1 + \beta_6 BME_i + \beta_{12} BME_i^2)$. However, Equation 1 is mean centered; thus, BME_i is $BME_{i(observed)} - \mu_{(bme)}$. Thus, the effect of CRM system investments at $BME_{i(observed)}$ is $(\beta_1 + \beta_6[BME_{i(observed)} - \mu_{(bme)}] + \beta_{12}[BME_{i(observed)} - \mu_{(bme)}]^2)$.

[8] For presentation convenience, we plot bricks-and-mortar experience up to 28 years in Figure 1. We observe similar diminishing returns to CRM system investments for higher levels of bricks-and-mortar experience.

[9] The average return level on CRM system investments (unstandardized $b = .19$, $p < .01$) corresponds to the main effect of CRM system investments (standardized $b = .30$, $p < .01$) in Table 1.

CRM and Firm Online Experience (H_2)

CRM system investments. The first-order interaction ($\text{OE}_i \times \text{CRM\_Invest}_i$) is positive and significant (b = .28, $p < .01$), and the second-order interaction ($\text{OE}_i^2 \times \text{CRM\_Invest}_i$) is negative and significant (b = –.25, $p < .05$), in support of H_2. We plot the estimated coefficients of CRM system investments at different levels of online experience in Figure 2.

The expected inverted U shape in Figure 2 indicates that moderate online experience strengthens the effects of a firm's CRM system investments more than low and high online experience. Online experience of 4.5 years maximizes customer satisfaction returns on CRM system investments. Additional analysis indicates that CRM returns drop below the average (.19) when online experience is less than 3.0 years (.16) and greater than 6.5 years (.15). Notably, customer satisfaction returns on CRM system investments of very young firms (<2 years) are negative. We conjecture that this may be due to the challenges that confront these nascent firms in the turbulent online retailing market.

FIGURE 1
The Moderating Effect of Firm Bricks-and-Mortar Experience on Rewards for CRM

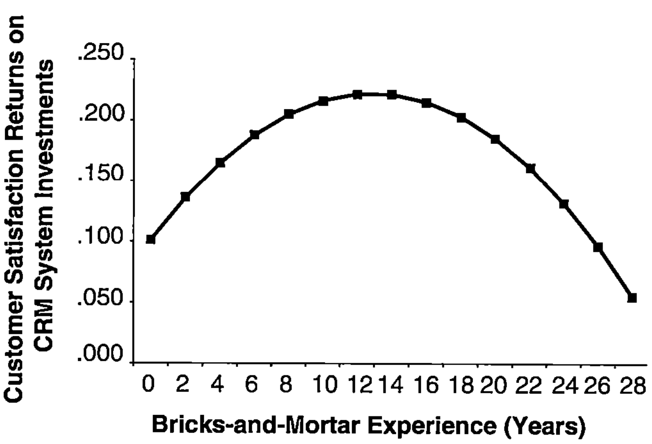
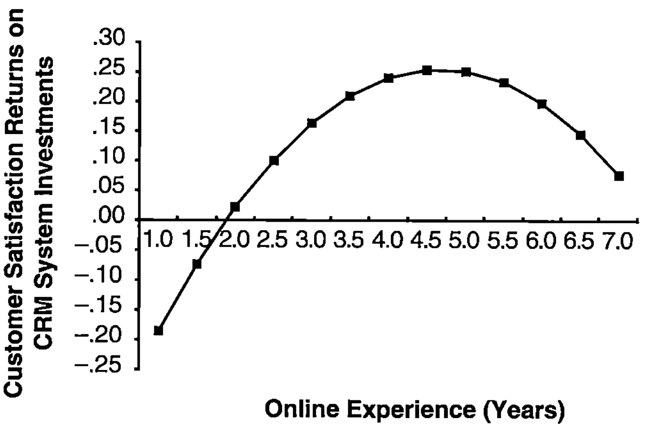


FIGURE 2
The Moderating Effect of Firm Online Experience on Rewards for CRM



In summary, the significant parameter estimates of the first-order (b = .28, $p < .01$) and second-order (b = –.25, $p < .05$) interaction terms, combined with the inverted U-shaped relationship of the returns on a firm's CRM system investments at different levels of online experience, support H_2.

CRM capability. Finally, we examine the effect of a firm's online experience on the effects of its CRM capability. Neither the first-order ($\text{OE}_i \times \text{CRM\_Cap}_i$) (b = .17, n.s.) nor the second-order ($\text{OE}_i^2 \times \text{CRM\_Cap}_i$) (b = .04, n.s.) interactions are significant. These results, combined with the positive main effect of CRM capability (b = .29, $p < .05$), suggest that the effect of a firm's CRM capability on customer satisfaction is impervious to its online experience.

Discussion

CRM System Investments and Firm Strategic Commitments

The study's findings indicate that firms' prior strategic commitments have impressive effects on the performance of their CRM investments. Specifically, the customer satisfaction effects of CRM system investments are greater for online retailers with moderate levels of bricks-and-mortar experience than for firms with low and high levels of bricks-and-mortar experience. In light of this finding, managers of bricks-and-mortar retailers with moderate bricks-and-mortar experience (approximately 12 years) can consider their offline experience an asset. Higher levels of bricks-and-mortar experience (>20 years) produce diminishing customer satisfaction returns on CRM system investments. Perhaps these older incumbent retailers' core rigidities dampen the returns on their CRM system investments in the emerging online market. From an operational perspective, CRM executives can assess the rewards for their firm's and competitors' CRM system investments, given their bricks-and-mortar experience.

With respect to online experience, customer satisfaction effects of online CRM system investments are greater for firms with moderate online experience (approximately 4.5 years) than for firms with low and high online experience. This suggests that there is a window of opportunity in the online retailing market for fast followers to generate greater customer satisfaction returns on their CRM activities than early and later entrants. Finally, managers can use this approach to predict the optimal return on their investment and on their competitors' CRM investments, given online experience levels.

CRM Capability and Firm Strategic Commitments

Unlike CRM system investments, our findings indicate that a firm's strategic commitments do not moderate the customer satisfaction effects of its CRM capability, which is embodied in its market intelligence acquisition, dissemination, and responsiveness processes. Thus, a firm's market orientation appears to be a robust and effective organizational capability that operates independently of the two strategic commitments of bricks-and-mortar and online experience. This null result, though not compelling in isolation, is powerful when it is considered in conjunction with the significant moderating effects of CRM system investments.

Limitations and Opportunities for Further Research

Given the complex relationship between customer satisfaction and other performance metrics (Anderson, Fornell, and Lehmann 1994), the generalizability of this study's findings to other performance metrics is an important issue. Specifically, studies using profit-based performance metrics would provide insight into cost-based effects and revenue-based effects of a firm's CRM investments. In this study, we focused on the role of strategic commitments on CRM returns in online retailing, an important emerging market. Further research that examines this issue in other emerging and mature markets would extend the study's findings in important ways. In addition, researchers could investigate the generalizability of our findings using other strategic commitments, CRM investments, and CRM capabilities.

Conclusion

In summary, our study makes four contributions. First, we offer a contingent effect of a firm's CRM investments on its performance, shedding some light on the divergent findings between the CRM literature and CRM practice. Second, we offer a strategic vantage point, highlighting the role of two key strategic commitments on the rewards for CRM investments. Third, we provide important insights into CRM activities in online retailing, for which the complex intersection of firm and customer forces shapes firm performance. Fourth, our study offers guidance to practitioners on the contingent nature of rewards for their CRM investments, which should be useful in managing their firms' investments and monitoring their competitors' CRM investments.

Appendix

Firm Customer Satisfaction (mean = 8.68, s.d. = .58, range = 1–10; α = .80)

How satisfied are you overall with this purchase experience at (merchant name) site? (1 = "not at all" to 10 = "highly")

(Note that the reported mean and standard deviation are across firms, and the alpha is across individuals within firms.)

Firm CRM System Investments (mean = 5.04, s.d. = .93, range = 1–7; α = .77)

Rate the level of investments your firm makes in the following areas: (1 = "low investments," 4 = "moderate investments," and 7 = "high investments")

1. Developing a large installed base of customers
2. Enhancing the performance of our website
3. Providing optimal product pricing
4. Improving the ease of ordering
5. Building a strong attachment to our brands
6. Enhancing the quality of customer support

Rate your firm relative to industry average. (1 = "worse than industry average," 4 = "on par," 7 = better than industry average")

1. CRM acquisition expenses
2. CRM retention expenses

Firm CRM Capability (measured by firm market orientation) (mean = 4.92, s.d. = .78, range = 1–7; α = .76)

Rate the extent to which the following statements describe your firm: (1 = "strongly agree," 7 = "strongly disagree")

Information generation

1. In this business, we do and/or buy a lot of market research.
2. We are slow to detect changes in our customers' product preferences.
3. We are slow to detect fundamental shifts in our industry (e.g., competition).

Information dissemination

1. We have frequent interdepartmental meetings to discuss market trends.
2. Marketing personnel spend time discussing customers' future needs with other departments.
3. Data on customer satisfaction are disseminated at all levels on a regular basis.
4. When one department finds out something important about competitors, it is slow to alert other departments.

Responsiveness

1. It takes forever to decide how to respond to our competitors' price changes.
2. We tend to ignore changes in our customers' products or service needs.
3. If a major competitor launched an intensive campaign targeting our customers, we would respond immediately.
4. The activities of the different departments are well coordinated.
5. Customer complaints fall on deaf ears in our firm.
6. Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.
7. When our customers want us to modify a product or service, the departments involved make an effort to do so.

Firm Bricks-and-Mortar Experience (mean = 2161 days, s.d. = 4432 days, range = 0–27,393 days)

The difference (in days) between the "days since firm founding" and "days since firm Web entry," both measured from the survey date of May 1, 2001, is the measure of bricks-and-mortar experience.

Firm Online Experience (mean = 1180 days, s.d. = 670 days, range = 1–2497 days)

The difference (in days) between the days since the industry's first entrant and the days since firm's Web entry. To facilitate interpretation such that larger numbers denote higher online experience, we subtracted the firm's online experience from our survey date of May 1, 2001.

Customer Online Experience (mean = 3.19, s.d. = 1.12, range = 1–10)

The number of online purchases made by the firm's customers in the product category in the previous six months.

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Sunil Mithas, M.S. Krishnan, & Claes Fornell

Why Do Customer Relationship Management Applications Affect Customer Satisfaction?

This research evaluates the effect of customer relationship management (CRM) on customer knowledge and customer satisfaction. An analysis of archival data for a cross-section of U.S. firms shows that the use of CRM applications is positively associated with improved customer knowledge and improved customer satisfaction. This article also shows that gains in customer knowledge are enhanced when firms share their customer-related information with their supply chain partners.

Despite substantial investments in customer relationship management (CRM) applications, there is a lack of research demonstrating the benefits of such investments. In particular, there has been limited research on the role and contribution of CRM applications in managing customer encounters (Bitner, Brown, and Meuter 2000; Meuter et al. 2000). Although marketing and information systems researchers have developed theories about the effect of CRM applications, with some progress toward empirical validation (Jayachandran et al. 2005; Reinartz, Krafft, and Hoyer 2004; Romano and Fjermestad 2003; Srinivasan and Moorman 2005), there is limited knowledge about the effect of CRM applications on a firm's customer knowledge and customer satisfaction. Furthermore, prior research does not shed light on why CRM applications affect customer satisfaction or the role of complementary investments in supply chain management systems.

Against the backdrop of significant investment in CRM applications and limited empirical work on the effect of CRM applications on customer relationships, this article poses the research question, What is the effect of CRM applications on customer knowledge and customer satisfaction? We performed an empirical study using a cross-section of large U.S. firms. This study includes the development of a theoretical model and the collection of archival data from the National Quality Research Center at the University of Michigan and an *InformationWeek* survey of senior information technology (IT) managers. We examine the role of customer knowledge as a mediating mechanism to explain the effect of CRM applications on customer satisfaction. We also study the moderating effect of supply chain integration in leveraging CRM applications.

We structure the rest of the article as follows: In the next section, we review the literature and develop the hypotheses. Then, we discuss the methodology and present the results. We conclude with a discussion of the implications of the study.

Research Model and Theory

The customer equity literature provides the basic rationale for investing in customer relationships. There is increasing recognition of the importance of managing customer relationships and customer assets. Marketing has moved from a brand-centered focus to a customer-centered approach. Hogan, Lemon, and Rust (2002) argue that the ability to acquire, manage, and model customer information is key to sustaining a competitive advantage. Berger and colleagues (2002) develop a framework to assess how customer database creation, market segmentation, customer purchase forecasting, and marketing resource allocations affect customers' lifetime value to the firm. Hogan and colleagues (2002) extend this work and provide conceptual support for linking customer assets (in terms of customer lifetime value) and financial performance.

Next, we develop the hypotheses for the effect of CRM applications on customer knowledge and customer satisfaction. We also discuss the moderating role of supply chain integration to understand the effect of CRM applications on customer knowledge.

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The Effect of CRM Applications on Customer Knowledge

A primary motivation for a firm to implement CRM applications is to track customer behavior to gain insight into customer tastes and evolving needs. By organizing and using this information, firms can design and develop better products and services (Davenport, Harris, and Kohli 2001; Nambisan 2002). Davenport and Klahr (1998) argue that customer knowledge has certain attributes that make it one of the most complex types of knowledge. For example, customer knowledge may be derived from multiple sources and media and may have many contextual meanings. Customer knowledge is also dynamic, and it changes rapidly.

Customer relationship management applications facilitate organizational learning about customers by enabling firms to analyze purchase behavior across transactions through different channels and customer touchpoints. Glazer (1991) provides examples of how FedEx and American Airlines used their investments in IT systems at the customer interface to gain valuable customer knowledge. More recently, firms have invested in an integrated set of tools and functionalities offered by leading software vendors to gather and store customer knowledge. Firms with greater deployment of CRM applications are in a better position to leverage their stock of accumulated knowledge and experience into customer support processes. In addition, firms with a greater deployment of CRM applications are likely to be more familiar with the data management issues involved in initiating, maintaining, and terminating a customer relationship. This familiarity gives firms a competitive advantage in leveraging their collection of customer data to customize offerings and respond to customer needs.

Customer relationship management applications help firms gather and use customer knowledge through two mechanisms. First, CRM applications enable customer contact employees to record relevant information about each customer transaction. After this information is captured, it can be processed and converted into customer knowledge on the basis of information-processing rules and organizational policies. Customer knowledge captured across service encounters can then be made available for all future transactions, enabling employees to respond to any customer need in a contextual manner. Firms can also use customer knowledge to profile customers and identify their latent needs on the basis of similarities between their purchase behaviors and those of other customers. Second, firms can share their accumulated customer knowledge with customers to enable those customers to serve themselves by defining the service and its delivery to suit their needs (Prahalad, Ramaswamy, and Krishnan 2000). The process of customer self-selection of service features provides additional opportunities for firms to learn about their customers' evolving needs and to deepen their customer knowledge.

H_1: The use of CRM applications is associated with an improvement in the customer knowledge that firms gain.

The Moderating Role of Supply Chain Integration

Supply chain integration refers to the extent to which a firm shares relevant information about its customers with its supply chain partners. Supply chain integration ensures that products and services offered by various organizational units and suppliers are coordinated to provide a better customer experience. Previous research suggests that integration of IT systems in a firm's value chain is essential to the realization of the full benefits of seamless information sharing and data completeness (Brohman et al. 2003; Gosain, Malhotra, and El Sawy 2005; Rai, Patnayakuni, and Patnayakuni 2005). For example, Fisher, Raman, and McClelland (2000) note that IT-enabled data accuracy is critical for efficient forecasting and to design agile supply chain management processes. Anderson, Banker, and Ravindran (2003, p. 94) argue that "interweaving of IT links throughout the supply chain create[s] value by enabling each member of the supply chain to identify and respond to dynamic customer needs." Creating an integrated IT infrastructure enables organizational units to leverage their resources effectively to address customers' evolving needs (Sambamurthy, Bharadwaj, and Grover 2003). For example, superior customer ratings and the success of customer relationship programs at Saturn, Dell, and Southwest have been attributed to their excellent supply chain management integration (*Harvard Business Review* 2003). Conversely, industry observers have noted that the failure of many CRM efforts is due to "the propensity of firms to avoid the important 'data transformation and convergence' processes including all transactions, interactions, and networked touch points" (Swift 2002, p. 95). Thus, we expect that firms with greater supply chain integration benefit more from their CRM applications in terms of improved customer knowledge.

H_2: Firms with greater supply chain integration are more likely to benefit from their CRM applications and achieve improved customer knowledge.

The Effect of CRM Applications on Customer Satisfaction

Customer satisfaction has significant implications for the economic performance of firms (Bolton, Lemon, and Verhoef 2004). For example, customer satisfaction has been found to have a negative impact on customer complaints and a positive impact on customer loyalty and usage behavior (Bolton 1998; Fornell 1992). Increased customer loyalty may increase usage levels (Bolton, Kannan, and Bramlett 2000), secure future revenues (Rust, Moorman, and Dickson 2002), and minimize the likelihood of customer defection (Anderson and Sullivan 1993; Mithas, Jones, and Mitchell 2002). Customer satisfaction may also reduce costs related to warranties, complaints, defective goods, and field service costs (Fornell 1992). Finally, in a recent study, Anderson, Fornell, and Mazvancheryl (2004) find a strong relationship between customer satisfaction and Tobin's q (as a measure of shareholder value) after controlling for fixed, random, and unobservable factors.

Customer relationship management applications are likely to have an effect on customer satisfaction for at least three reasons. First, CRM applications enable firms to customize their offerings for each customer. By accumulating information across customer interactions and processing this information to discover hidden patterns, CRM applications help firms customize their offerings to suit the individual tastes of their customers. Customized offerings enhance the perceived quality of products and services from a customer's viewpoint. Because perceived quality is a determinant of customer satisfaction, it follows that CRM applications indirectly affect customer satisfaction through their effect on perceived quality. Second, in addition to enhancing the perceived quality of the offering, CRM applications also enable firms to improve the reliability of consumption experiences by facilitating the timely, accurate processing of customer orders and requests and the ongoing management of customer accounts. For example, Piccoli and Applegate (2003) discuss how Wyndham uses IT tools to deliver a consistent service experience across its various properties to a customer. Both an improved ability to customize and a reduced variability of the consumption experience enhance perceived quality, which in turn positively affects customer satisfaction. Third, CRM applications also help firms manage customer relationships more effectively across the stages of relationship initiation, maintenance, and termination (Reinartz, Krafft, and Hoyer 2004). In turn, effective management of the customer relationship is the key to managing customer satisfaction and customer loyalty.

H_3: The use of CRM applications is associated with greater customer satisfaction.

The Mediating Role of Customer Knowledge

Although customer knowledge and customer satisfaction by themselves are important metrics for tracking the success of CRM applications, from a theoretical perspective, it is important to consider whether the association of CRM applications with improvement in customer satisfaction is mediated by an improvement in customer knowledge. From a managerial perspective, an understanding of causal mechanisms will shed light on the conditions that facilitate CRM success in terms of customer satisfaction. We posit that the real value of CRM applications lies in the collection and dissemination of customer knowledge gained through repeated interactions. This customer knowledge subsequently drives customer satisfaction because firms can tailor their offerings to suit their customers' requirements. Previous research provides support for this view. For example, Bharadwaj (2000) notes the advantages of gathering customer knowledge from customer encounters and disseminating this knowledge to employees for cross-selling and forecasting product demand. Bolton, Kannan, and Bramlett (2000) provide empirical evidence that IT-enabled loyalty programs enable firms to gain valuable customer knowledge about customers' purchase behavior. Jayachandran, Hewett, and Kaufman (2004) show that customer knowledge processes enhance the speed and effectiveness of a firm's customer response. Better knowledge of customer behavior enables firms to manage and target customers on the basis of evolving service experiences rather than stable demographic criteria, which increases the perceived value of the firm's offering and decreases the chance of loyal customers defecting to the competition. Firms also derive a competitive advantage by making cumulative customer knowledge available to their customers to help those customers manage their internal operations using information from the firm (Glazer 1991). As the preceding discussion suggests, better customer knowledge facilitated by CRM should enable a firm to improve its customer satisfaction. Therefore, we posit that the effect of CRM applications on customer satisfaction is mediated through customer knowledge.

H_4: Customer knowledge mediates the effect of CRM applications on customer satisfaction.

Because this research studies the effect of CRM applications on customer satisfaction, we control for other relevant variables to account for alternative and complementary explanations. We control for firms' aggregate IT investments because such investments influence perceived quality, perceived value, and customer satisfaction (Prahalad, Krishnan, and Mithas 2002). We control for firm size, which may influence a firm's ability to benefit from CRM investments as a result of organizational inertia and a greater potential in large organizations for leveraging slack resources. Finally, consistent with previous research, we control for sector differences (manufacturing versus services), which may affect gains in customer knowledge and customer satisfaction.

Research Design and Methodology

A major strength of this study is its use of data on key independent and dependent variables from separate sources to avoid common method bias. We obtained the CRM and IT-related data from *InformationWeek*, a leading, widely circulated IT publication in the United States. *InformationWeek* collected this data by surveying the top IT managers at more than 300 large U.S. firms during the 2001–2002 period. *InformationWeek* is considered a reliable source of information, and previous academic studies have used data from *InformationWeek* surveys (Santhanam and Hartono 2003). We collected customer satisfaction data (American Customer Satisfaction Index [ACSI]) that was tracked by the National Quality Research Center (NQRC) at the University of Michigan to obtain an archival measure of customer satisfaction for the firms common in the *InformationWeek* data and the NQRC database.

Variable Definition

ACSI. The ACSI is considered a reliable indicator of a firm's customer satisfaction, and the data have been used in several academic studies in the accounting and marketing literature (e.g., Anderson, Fornell, and Mazvancheryl 2004; Fornell et al. 1996).

Customer knowledge (CUSTKNOW). Customer knowledge is a binary variable for which 1 indicates that a firm has gained significant knowledge about its customers from its customer-related IT systems, and 0 indicates that a firm does not perceive any gains in customer knowledge from its customer-related systems.

CRM applications (CRMAPLC). This variable encompasses both the legacy IT applications (i.e., the applications that firms developed before modern CRM applications were introduced) and newer IT applications (i.e., the integrated suite of marketing and sales applications developed by CRM and enterprise resource-planning vendors). We measured the first component of CRM applications (legacy customer-related IT applications) using a 12-item summative index that indicates the deployment of IT systems to support business processes associated with customer acquisition and disposal of a firm's products and services. The specific IT systems covered by this scale are related to product marketing information, multilingual communication, personalized marketing offerings, dealer locator, product configuration, price negotiation, personalization, transaction system, online distribution and fulfillment system, customer service, and customer satisfaction tracking. We measured the second component of CRM applications (modern CRM systems) using a binary variable (1 = the firm has deployed modern CRM systems, 0 = the firm has not deployed modern CRM systems). We added these two components of CRM systems after standardizing the legacy CRM component (mean = 0, standard deviation = 1). Thus, the variable (i.e., CRM applications) provides greater weight to modern CRM systems but also captures the deployment of legacy customer-related IT applications. Overall, this variable measures a firm's sophistication in managing customer-related information.

Supply chain integration (SCMINTGR). This variable refers to the extent to which a firm's suppliers and partners are included in its electronic supply chain and how much access they have to the firm's customer-related data or applications. It consists of a five-item summative index that describes whether a firm provides its suppliers with electronic access to the following types of application or data: sales forecasts, marketing plans, sales or campaign results, customer demographics, customer loyalty, and satisfaction metrics. We used the standardized (after standardization, mean = 0, standard deviation = 1) value of this variable in our estimation for easier interpretation of the results, particularly because we also investigate the interaction of this variable with CRM applications.

IT intensity (ITINVPC). This variable refers to the level of IT investment as a percentage of the firm's sales revenue.

Industry sector (MFG). This indicator variable represents whether the firm's offering is primarily a good or a service (1 = good, 0 = service).

Firm size (SIZE). This variable is the natural log of the firm's sales revenue.

Empirical Models

Because the dependent variable (i.e., customer knowledge) appears as a binary choice, the ordinary least squares (OLS) approach for modeling the binary dependent variable is not appropriate because of heteroskedastic error distribution. A linear model may result in predicted probabilities less zero or greater than one. In addition, a linear model does not allow us to consider the nonlinear nature of the effect of independent variables on the binary dependent variable. To overcome these estimation problems inherent in the OLS approach, we conducted our analysis for this model using the probit approach with the following specification:

$$\begin{aligned}(1)\ \text{Probability}(\text{CUSTKNOW} = 1) = \Phi(&\beta_{10} + \beta_{11}\text{CRMAPLC}\\ &+ \beta_{12}\text{ITINVPC} + \beta_{13}\text{MFG}\\ &+ \beta_{14}\text{SIZE} + \beta_{15}\text{SCMINTGR}\\ &+ \beta_{16}\text{CRMAPLC}\\ &\times \text{SCMINTGR} + \varepsilon),\end{aligned}$$

where βs are the parameters for the respective variables, and Φ denotes the normal cumulative distribution function (the area under the normal curve).

We used the OLS approach to estimate the customer satisfaction model because the ACSI is a continuous measure of customer satisfaction.

$$\begin{aligned}(2)\ \text{ACSI} = (&\beta_{20} + \beta_{21}\text{CRMAPLC} + \beta_{22}\text{ITINVPC} + \beta_{23}\text{MFG}\\ &+ \beta_{24}\text{SIZE} + \beta_{25}\text{SCMINTGR} + \beta_{26}\text{CUSTKNOW} + \varepsilon).\end{aligned}$$

The sample size for Equation 1 is 360, and the sample size for Equation 2 is 40. Table 1 shows the results of empirical estimation of the models in Equations 1 and 2.

Results

Consistent with H_1, we find that CRM applications are positively associated with an improvement in customer knowledge (Column 1 of Table 1; $\beta_{11} = .280$, $p < .001$). Because the probit model is inherently nonlinear, we interpret the effect of each individual variable, holding all other variables at their mean values.

In H_2, we posit a moderating effect of supply chain integration on the relationship between CRM applications and customer knowledge. We find support for this hypothesis because the joint hypothesis test for the terms involving CRM applications and the interaction of CRM applications with supply chain integration is statistically significant. This result suggests that CRM applications are likely to have a greater association with customer knowledge when firms are electronically integrated in their supply chain and share customer-related data with their supply chain partners.

We also find support for H_3, which posits a positive association between CRM applications and customer satisfaction (Column 2 of Table 1; $\beta_{21} = 1.266$, $p < .069$). In H_4, we suggest that the association between CRM applications and customer satisfaction is mediated by the effect of CRM applications on customer knowledge. We used the Sobel test to assess this mediation effect (Baron and Kenny 1986). We find evidence for the indirect effect of CRM applications on customer satisfaction mediated through customer knowledge ($\beta_{26} = 4.307$, $p < .028$). This result implies that, holding other factors constant, firms that report an improvement in customer knowledge due to their customer-related IT systems have ACSI scores 4.307 points greater than firms that report no gains in customer knowledge following investments in CRM applications. Because the coefficient of the CRM applications variable is statistically significant in Column 2 of Table 1, our results suggest partial mediation and imply that CRM applications may also have a direct effect on customer satisfaction.

The results showing the effect of control variables on customer satisfaction also provide useful insights. Note that

TABLE 1
Customer Knowledge and Customer Satisfaction Models

Dependent Variable	Model 1: Improvement in Customer Knowledge (Probit)		Model 2: ACSI (OLS)[a]	
CRM applications	β_{11}	.280*** (.001)	β_{21}	1.266* (.069)
IT investments as percentage of revenue	β_{12}	.042* (.056)	β_{22}	–.437** (.011)
Manufacturing[b]	β_{13}	.011 (.474)	β_{23}	7.420*** (.000)
Firm size	β_{14}	.254*** (.009)	β_{24}	–.987** (.046)
Supply chain integration	β_{15}	.011 (.453)	β_{25}	–.555 (.166)
Interaction term (CRM × supply chain integration)	β_{16}	.120* (.084)		
Improvement in customer knowledge			β_{26}	4.307** (.028)
Constant	β_{10}	.488** (.018)	β_{20}	73.333*** (.000)
Observations		360		40
Overall fit	χ^2	28.06	R^2	.661

*$p < .10$ (one-tailed test).
**$p < .05$ (one-tailed test).
***$p < .01$ (one-tailed test).
[a]We also conducted an additional analysis that controlled for the ACSI score before CRM implementation, and we obtained broadly similar results.
[b]We also estimated models with more detailed industry classification, and our primary results remain unchanged.
Notes: p values are shown in parentheses.

when we control for the presence of CRM applications, the effect of IT investments on customer satisfaction is negative and statistically significant (Column 2 of Table 1; $\beta_{22} = –.437, p < .011$). This result is consistent with the observation that specific IT applications, such as CRM, that are directly involved in business processes affecting the customer experience may be much more effective in improving customer satisfaction than are aggregate IT investments (Mithas, Krishnan, and Fornell 2002). Focusing on CRM applications also avoids aggregation across several IT applications, in which applications may be relevant for customer satisfaction and others may have a negative or zero impact (Banker et al. 2005; Kauffman and Weill 1989; Mukhopadhyay, Kekre, and Kalathur 1995). Column 2 of Table 1 also shows that, on average, manufacturing firms have greater customer satisfaction than services firms, a finding that is consistent with previous research (Fornell et al. 1996).

Additional Analyses

We conducted additional sensitivity analyses to check the robustness of our results. Because Equation 1 uses data from *InformationWeek* sources on dependent and independent variables, we tested for common method bias using Harman's one-factor test. Because no single factor emerged as a dominant factor accounting for most of the variance, common method bias is unlikely to be a serious problem in the data.

As we previously noted, the variable (i.e., CRM applications) represents a combination of legacy CRM systems and modern CRM applications. We considered whether the use of modern CRM applications (captured by a binary variable in our data set) "causes" customer knowledge. Because a treatment such as CRM is not exogenously assigned to firms, we investigated the sensitivity of our results due to the potential correlation of CRM with unobservable variables that may have affected our findings (Boulding and Staelin 1995; Wierenga, Van Bruggen, and Staelin 1999). We used a matching estimator based on propensity scores to calculate the treatment effect of CRM implementation on improvement in customer knowledge (Heckman, Ichimura, and Todd 1997; Rubin 2003). Using a procedure that Rosenbaum (2002) suggests, we bound the matching estimator to evaluate the uncertainty of the estimated treatment effect due to selection on unobservables.

After matching the propensity scores and thus adjusting for the observed characteristics, we find that the average CRM effect for improvement in customer knowledge is positive and statistically significant. This calculation is based on the assumption that treatment and control groups are different because they differ on the observed variables in the data set. However, if treatment and control groups differ on unobserved measures, a positive association between treatment status and performance outcome would not necessarily represent a causal effect (Boulding and Staelin 1995). Given that we already accounted for selection bias due to observed characteristics, sensitivity analysis provides an assessment of the robustness of treatment effects due to factors not observed in the data. Because it is not possible to estimate the magnitude of selection bias due to unobservables with nonexperimental (i.e., observational) data, we calculated the upper and lower bounds on the test statistics used to test the null hypothesis of the no-treatment effect for different values of unobserved selection bias.

For firm i, assume that u_i is an unobserved variable and that γ is the effect of u_i on the probability of participating in a treatment. Under the assumption that the unobserved variable u is a binary variable, the following expression can be derived (Rosenbaum 2002):

$$1/\Gamma \le [\pi_i/(1 - \pi_i)]/[\pi_j/(1 - \pi_j)] \le \Gamma,$$

where $\Gamma = \exp(\gamma)$, i and j are two different firms within a stratum, and π is the conditional probability (propensity score) that a firm with given observed characteristics will be in the treatment group. If unobserved variables have no effect on the probability of getting into the treatment group (i.e., $\gamma = 0$), or if there are no differences in unobserved variables (i.e., $[u_i - u_j] = 0$), there is no unobserved selection bias, and the odds ratio will be $\exp(0) = 1$. In the sensitivity analysis, we evaluate how inferences about the treatment effect will be altered by changing the values of γ and $(u_i - u_j)$. If changes in the neighborhood of $\exp(\gamma) = 1$ change the inference about the treatment effect, the estimated treatment effects are posited to be sensitive to unobserved selection bias.

We find that improvement in customer knowledge is not sensitive to unobserved selection bias even if the binary unobserved variable makes it twice as likely for a firm to be in the treatment group than in the control group (after we control for several observed characteristics). Overall, these results provide evidence for the robustness of our findings, showing the positive effect of CRM applications on customer knowledge and, in turn, on customer satisfaction.

Discussion and Conclusion

Our goal in this research was to study the effect of CRM applications on customer knowledge and customer satisfaction. We developed a theoretical model that posits a mediating role of customer knowledge and a moderating role of supply chain integration in explaining the effect of CRM applications on customer satisfaction. We used archival data on CRM applications and a perceptual measure of customer knowledge on a cross-section of large U.S. firms during the 2001–2002 period. The study's time frame encompasses a period when firms made significant investments in IT, particularly Internet-based and integrated suites of CRM systems. We matched part of this data set with the sample of firms common to the ACSI to study the effect of CRM applications on customer satisfaction.

Consistent with our expectations, we find that CRM applications are associated with a greater improvement in customer knowledge when firms are willing to share more information with their supply chain partners. Our results suggest that the effect of CRM applications on customer satisfaction is mediated by an improvement in firms' customer knowledge. These results lend support to our previously developed theory and conceptual framework.

Contributions and Research Implications

This study makes three contributions: First, it builds on previous research that links IT systems and customer satisfaction to contribute to the cumulative knowledge in this stream of literature (Balasubramaniam, Konana, and Menon 2003; Brynjolfsson and Hitt 1998; Chabrow 2002; Devaraj and Kohli 2000; Susarala, Barua, and Whinston 2003). More specifically, given the paucity of research on the benefits gained from CRM technology investments, this study augments the understanding of the beneficial effects of CRM applications by relating them to customer knowledge and customer satisfaction at the firm level. We extend previous research on the effect of CRM processes at the customer-facing level in European countries (Reinartz, Krafft, and Hoyer 2004) and at the strategic business unit level in the United States (Jayachandran et al. 2005) by providing answers to strategic questions about the effect of CRM technology investments on customer knowledge and customer satisfaction. By emphasizing the strategic benefits of CRM applications in terms of customer knowledge and customer satisfaction, we provide a complementary view of judging returns from CRM applications by considering nontangible aspects that are critical for the creation of shareholder wealth (Anderson, Fornell, and Mazvancheryl 2004).

Second, our study points to the importance of customer knowledge as one of the mediating mechanisms that explains the association between CRM applications and customer satisfaction. Although several studies provide conceptual support for the effect of CRM applications on customer knowledge, our study empirically establishes this association. More broadly, our study provides support for the emerging view that IT applications affect firm performance by enabling other business processes and capabilities, which in turn may affect firm performance (Mithas et al. 2005; Pavlou et al. 2004).

Third, the results of this study suggest that it is important to account for the effect of factors such as supply chain integration in the evaluation of returns from CRM applications. We find that though CRM applications are associated with customer knowledge and customer satisfaction, they are even more beneficial if firms share their customer-related information with supply chain partners. This result provides empirical support for the importance of supply chain integration for firm performance (Chopra and Meindl 2003; Fisher, Raman, and McClelland 2000; Gosain, Malhotra, and El Sawy 2005; Narasimhan and Jayaram 1998). This finding is also consistent with studies by Barua and colleagues (2001) and Rai, Patnayakuni, and Patnayakuni (2005), emphasizing the importance of flexibility in the supply chain and sharing information with supply chain partners.

Directions for Further Research

We identify several promising areas for further research in this stream of literature. First, firm strategies for treating customers may differ depending on a business-to-consumer

(B2C) or business-to-business (B2B) context. These differences arise because of the differential ability of firms to negotiate Pareto-optimal contracts across these contexts, the large but infrequent purchases in the B2B context (compared with small but frequent purchases in the B2C context), and the presence of multiple stakeholders in the buying center in the B2B context (compared with individual decision making in the B2C context). Future studies could explore whether CRM initiatives in the B2B context have an effect on customer satisfaction and other customer-based metrics.

Second, although our study suggests that the association between CRM applications and customer satisfaction is mediated by customer knowledge, note that CRM applications merely enable firms to collect customer knowledge. Only when firms act on this knowledge by modifying service delivery or by introducing new services will they truly benefit from their CRM applications.[1] Furthermore, firms may need to make changes in their incentive systems and institute complementary business processes to leverage CRM investments. There is a need for further research to trace the causal chain linking CRM applications and customer satisfaction at a finer level of granularity by specifically accounting for such complementary actions. The studies by Barua and colleagues (2004), Barua and colleagues (2001), and Wu, Mahajan, and Balasubramaniam (2003) provide good instrumentation and research design for undertaking such research.

Finally, although many firms justify the implementation of CRM applications based on expected gains in customer satisfaction, there is a need for further research to examine the benefits in terms of increased revenue, profitability, and market value compared with the costs of implementing CRM applications. Equally, there is a need to consider and quantify the potential risks of not implementing CRM applications in a competitive environment. An attractive area for further research may be to evaluate the extent to which the implementation of CRM applications helps firms enhance the net present value of their customer base and improve the effectiveness of cross-selling and one-to-one marketing programs (Peppers and Rogers 2004).

Managerial Implications

This study also has several managerial implications. First, for firms evaluating CRM applications, it is important to understand the conditions under which deployment of those applications contribute to improved customer knowledge and customer satisfaction. Our results showing the importance of supply chain integration in realizing the benefits from CRM applications could be useful to managers who are currently evaluating or implementing CRM applications. Our analysis shows that firms with greater supply chain integration are more likely to benefit from CRM applications in terms of customer knowledge and customer satisfaction. The results imply that firms need to be willing to share their customer-related information with supply chain partners to benefit from the implementation of CRM applications.

Second, the importance of customer knowledge as a mediator for customer satisfaction suggests that in addition to implementing CRM, managers should also ensure that customer knowledge is disseminated across customer touchpoints in order to benefit in terms of customer satisfaction. An implication of this finding is that managers need to institute measurement systems to capture the gains in customer knowledge following the implementation of CRM applications because gains in customer knowledge are a precursor to gains in customer satisfaction.

Conclusion

This research empirically tested the effect of CRM applications on customer knowledge and customer satisfaction. Using archival data on a broad cross-section of U.S. firms, we found that CRM applications are likely to affect customer knowledge when they are well integrated into the supply chain. Our findings provide empirical support for the conjectures that CRM applications help firms gain customer knowledge and that this knowledge helps firms improve their customer satisfaction. Our research contributes to empirically valid theory by synthesizing insights from the marketing and information systems literature and by investigating the effect of organizational variables that leverage CRM investments. Overall, our results suggest that firms that make investments in CRM applications reap significant intangible benefits, such as improved customer knowledge and customer satisfaction. Achieving such customer-focused business objectives is a critical ingredient for success in increasingly competitive markets.

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[1] We thank an anonymous reviewer for this insightful observation.

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Anders Gustafsson, Michael D. Johnson, & Inger Roos

The Effects of Customer Satisfaction, Relationship Commitment Dimensions, and Triggers on Customer Retention

In a study of telecommunications services, the authors examine the effects of customer satisfaction, affective commitment, and calculative commitment on retention. The study further examines the potential for situational and reactional trigger conditions to moderate the satisfaction–retention relationship. The results support consistent effects of customer satisfaction, calculative commitment, and prior churn on retention. Prior churn also moderates the satisfaction–retention relationship. The results have implications for both customer relationship managers and researchers who use satisfaction surveys to predict behavior.

Marketing scholars emphasize the influence of customer satisfaction on loyalty (Fornell et al. 1996; Mittal and Kamakura 2001). The relationship management literature emphasizes two different dimensions of relationship commitment that drive loyalty: affective commitment, as created through personal interaction, reciprocity, and trust, and calculative commitment, as created through switching costs (Bendapudi and Berry 1997; Fullerton 2003; Garbarino and Johnson 1999; Morgan and Hunt 1994). Loyalty is often interpreted as actual retention, which is a cornerstone of customer relationship management (CRM). Yet the vast majority of prior research has demonstrated the effects of these constructs only on behavioral intentions. Relatively few studies explain actual behavior (exceptions include Bolton 1998; Bolton and Lemon 1999; Mittal and Kamakura 2001; Verhoef 2003), and to our knowledge, no study examines the effects of all three constructs on retention.

Our goal is to provide insight into the drivers of retention using a combination of survey and longitudinal data from a telecommunications service provider. The research contributes to the CRM literature in three important ways. First, we examine the competing effects of customer satisfaction, affective commitment, and calculative commitment on customer retention. Second, we demonstrate the importance of controlling for heterogeneity (Mittal and Kamakura 2001) or prior loyalty (Guadagni and Little 1983) when predicting retention. Third, we explore the potential for different precipitating events, or "triggers," to moderate the effect of satisfaction on retention.

Effective CRM strategies vary considerably depending on which factors are driving retention. If customer satisfaction is the primary driver of retention, a firm should improve product or service quality or offer better prices. If affective or calculative commitment is more important, a firm should either build more direct relationships with customers or build switching barriers in relation to competitors. Even these strategies may be dependent on the trigger condition that customers face (Smith, Bolton, and Wagner 1999).

The Drivers of Customer Retention

To understand the complexity of customer loyalty, it is important to understand the evaluations, attitudes, and intentions that affect behavior (Oliver 1999). We focus on three prominent drivers of retention in the marketing literature: overall customer satisfaction, affective commitment, and calculative commitment.

Customer Satisfaction

Customer satisfaction is defined as a customer's overall evaluation of the performance of an offering to date (Johnson and Fornell 1991). This overall satisfaction has a strong positive effect on customer loyalty intentions across a wide range of product and service categories, including telecommunications services (Fornell 1992; Fornell et al. 1996). As an overall evaluation that is built up over time, satisfaction typically mediates the effects of product quality, service quality, and price or payment equity on loyalty (Bolton and Lemon 1999; Fornell et al. 1996). It also contains a significant affective component, which is created through repeated product or service usage (Oliver 1999). In a service context, overall satisfaction is similar to overall evaluations of service quality. Compared with more episode-based or

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transaction-specific measures of performance, overall evaluations are more likely to influence the customer behaviors that help a firm, such as positive word of mouth and repurchase (Boulding et al. 1993).

Historically, satisfaction has been used to explain loyalty as behavioral intentions (e.g., the likelihood of repurchasing and recommending). However, Verhoef (2003) argues that longitudinal data that combine survey measures with subsequent behavior should be used to establish a causal relationship between perceptions and behavior. For example, Bolton (1998) finds a positive effect of overall customer satisfaction on the duration of the relationship for cellular phone customers, and Bolton and Lemon (1999) show a positive effect of overall satisfaction on customer usage of telecommunications subscription services. In a large-scale study of automotive customers, Mittal and Kamakura (2001) show a strong, albeit nonlinear, effect of customer satisfaction on repurchase behavior, such that the functional form relating satisfaction to repurchase is marginally increasing. They also find large differences in the satisfaction–retention relationship across customer characteristics. On the basis of these studies, we expect customer satisfaction to have a significant influence on customer retention that varies across customers.

Affective and Calculative Commitment

The relationship marketing literature recognizes another potential driver of customer loyalty: relationship commitment (Bendapudi and Berry 1997; Morgan and Hunt 1994). Drawing on the organizational behavior literature (Meyer and Allen 1997), marketing scholars have variously defined commitment as a desire to maintain a relationship (Moorman, Deshpandé, and Zaltman 1993; Morgan and Hunt 1994), a pledge of continuity between parties (Dwyer, Schurr, and Oh 1987), the sacrifice or potential for sacrifice if a relationship ends (Anderson and Weitz 1992), and the absence of competitive offerings (Gundlach, Achrol, and Mentzer 1995). These various sources create a "stickiness" that keeps customers loyal to a brand or company even when satisfaction may be low.

The various definitions suggest two major dimensions of relationship commitment: affective commitment and calculative, or continuance, commitment (Fullerton 2003; Hansen, Sandvik, and Selnes 2003; Johnson et al. 2001). Calculative commitment is the colder, or more rational, economic-based dependence on product benefits due to a lack of choice or switching costs (Anderson and Weitz 1992; Dwyer, Schurr, and Oh 1987; Heide and John 1992). Affective commitment is a hotter, or more emotional, factor that develops through the degree of reciprocity or personal involvement that a customer has with a company, which results in a higher level of trust and commitment (Garbarino and Johnson 1999; Morgan and Hunt 1994).

In a financial services context, Verhoef (2003) demonstrates direct effects of affective commitment on both relationship maintenance (retention) and relationship development (share of a customer's business). Although both satisfaction and payment equity were positive antecedents of affective commitment, they did not directly affect behavior. Verhoef measured satisfaction using aggregated customer beliefs about specific dimensions of service performance (e.g., satisfaction with personal attention, willingness to explain procedures, response to claims). In contrast, we measure satisfaction as an overall evaluation of performance (Bolton and Lemon 1999; Fornell et al. 1996). In addition, Verhoef did not include calculative commitment in his study.

An important conceptual difference between customer satisfaction and the commitment dimensions is that satisfaction is "backward looking," whereas the commitment dimensions are more "forward looking." Satisfaction is a function of performance to date, whereas affective and calculative commitment capture the strength of the relationship and the resultant commitment to proceed forward. In our empirical study of telecommunications services, we operationalize customer retention using the degree of churn that occurs in a customer's use of fixed-phone service, cellular phone service, modem-based Internet service, or broadband Internet service. On the basis of the literature, we predict that affective commitment and calculative commitment each has a negative effect on churn (i.e., positive effect on retention).

In our preliminary analyses, we included the effects of price and quality as latent variables on retention. When these constructs were examined on their own, they had a negative effect on churn. However, when we included customer satisfaction in our churn equation, both price and quality became nonsignificant. Because tests of mediation (Baron and Kenny 1986) showed that the effects of price and quality on churn were completely mediated by satisfaction, we excluded these factors from further analysis.

Situational and Reactional Triggers

In general, a trigger is a factor or an event that changes the basis of a relationship (Roos, Edvardsson, and Gustafsson 2004). In the marketing literature, triggers are frequently cast as alarm clocks that concentrate energy for further actions (Edvardsson and Strandvik 2000; Gardial, Flint, and Woodruff 1996). As we describe in our empirical study, preliminary qualitative interviews support the use of Roos's (1999, 2002) situational and reactional triggers.

Situational triggers alter customers' evaluations of an offering based on changes in their lives or in something affecting their lives. These include demographic changes in the family (e.g., becoming "empty nesters"), changes in job situations, and changes in the economic situations. In a way, the product has expired; it no longer reflects the needs of the customer. In telecommunications, situational triggers may be represented by the need to replace or remove a type of service or subscribe to a different type of service. However, it may take considerable time before the switching path is complete (Keaveney 1995; Roos 1999).

Reactional triggers are those critical incidents of deterioration in perceived performance that are traditionally described in the literature (Gardial, Flint, and Woodruff 1996). When something out of the ordinary occurs, such as a decline in performance before purchase, during purchase, or during consumption, it redirects a customer's attention to evaluate present performance more closely, which may put customers on a switching path (Roos 1999, 2002). For example, Bolton (1998) finds that unreported service failures have a significant, negative effect on retention.

The discussion suggests that either a situational or a reactional trigger affects the relevance of pior-performance information when predicting retention. When faced with a situational trigger, customer satisfaction as an overall evaluation of prior performance may become less relevant to the prediction of retention. Similarly, because customers in a reactional trigger condition are actively problem solving, they may focus on present or future performance. Waiting to observe how the company addresses the product or service problem, these customers may put less rather than more stock in prior performance, as measured by overall customer satisfaction. On the basis of these arguments, we predict that that the satisfaction–retention link is weaker for customers in either a situational or a reactional trigger condition.

Empirical Study of Telecommunications Customers

Qualitative Interviews

We conducted the research using customers of a large Swedish telecommunications company that provides fixed-phone service, mobile phone service, modem-based Internet service, and broadband Internet service. Before we administered the periodic customer survey, we conducted initial qualitative interviews to better understand the triggers that occur in this context. We used a population of customers who had switched from the company either partly (a subset of services) or completely for the initial interviews. Of the 83 customers we contacted for the study, 48 participated in retelling their switching paths. We taped, transcribed, and content analyzed the interviews. Because the main purpose of these interviews was to ensure that the correct triggers were identified for the survey, we summarize the interview results here. Customers classified as having reactional triggers referred to some form of critical incident in which, for example, the customer support was poor or the service was unreliable. Customers classified as having situational triggers identified fundamental changes in their situation, including a lower need to make calls, a greater need to make long-distance calls, or the need to add an Internet supplier.

Periodic Survey

We used the results of the interviews to develop categories into which customers self-selected on the basis of which statement best described them as a customer. These statements were incorporated into the company's periodic customer survey. In addition to the trigger categories, the survey asked customers to rate the service in question (fixed phone, cellular phone, modem Internet, or broadband Internet) using the multi-item scales that appear in Table 1. Each latent variable had at least three indicators.

The satisfaction questions are the same as those used in the national customer satisfaction barometers (Fornell et al. 1996; Johnson et al. 2001). We adapted the affective and calculative commitment questions from prior studies (Johnson et al. 2001; Kumar, Hibbard, and Stern 1994; Meyer and Allen 1997). The affective commitment measures refer to the pleasure in being a customer of the company, the presence of reciprocity in the relationship, trust, and whether the company takes care of its customers. Calculative commitment refers explicitly to the economic consequences of ending the relationship (e.g., based on the company's locations). All statements were rated on a ten-point scale. We conducted a pilot study on 50 respondents to test the questions, during which we encouraged respondents to identify unclear questions. We reworded some of the questions on the basis of feedback from the respondents.

The company's periodic survey is administrated through a professional market research firm. The sample made available for our analysis consisted of 2734 respondents. The ages of the respondents in the sample varied from 18 to 65 years; the mean age was 39.5 years. In addition, 52% of the respondents were female, and 48% were male. We asked all respondents to decide whether they belonged to one or more of the trigger conditions or to state explicitly that none of the conditions applied. Two customers did not respond to the trigger questions, and 19 did not have churn data available, which resulted in a final sample size of 2715. Of these, there were 712 (26.2%) fixed phone, 1503 (55.5%) mobile phone, 303 (11.2%) modem-based Internet, and 197 (7.3%) broadband Internet customers. With respect to the trigger conditions, 2249 (82.8%) indicated that no triggers applied, 338 (12.4%) indicated a situational trigger, 197 (7.3%) indicated a reactional trigger, and 69 (2.5%) indicated both a situational and a reactional trigger.

Reliability and Discriminant Validity

We used principal components analyses to operationalize latent variables from the survey measures. For each set of measures, we extracted the first principal component to create each latent variable for use in subsequent regression analyses. As we show in Table 1, the loadings for the customer satisfaction and the commitment constructs are all relatively large and positive. When these loadings are squared, they indicate the communality of the measure, or the variance that the measure has in common with the latent variable. When the communality measures are standardized, the average communality of a block of indicators is referred to as average variance extracted (AVE) (Fornell and Larcker 1981). The criterion for establishing reliability is that the AVE measures should exceed .5 to ensure that, on average, the measures share at least half of their variation with the latent variable (Fornell and Larcker 1981; Hjorth 1994). As we show in Table 1, the AVE criterion is met for each of the latent variables, which supports the reliability of the measures.

Table 2 presents a correlation matrix for all of the variables used in the churn equations. Here, we focus on the correlations involving the latent constructs. To ensure the discriminant validity of the constructs, Fornell and Larcker (1981) argue that the AVEs of any two constructs should be greater than their squared correlation. When the latent variable correlations in Table 2 are squared (not shown), none exceeds the AVE of the constructs. This supports the discriminant validity of the constructs.

TABLE 1
Survey Measures, Loadings, and Average Variance Extracted

Trigger or Construct	Measure	Loading	Average Variance Extracted
Situational trigger	There has been a recent change in your working conditions, family situation, or living conditions that has caused you to consider switching to another operator.	N.A.	N.A.
Reactional trigger	There has been a recent change in your relationship with the company that has caused you to consider switching to another operator, such as poor service, receiving a faulty invoice, or something similar.	N.A.	N.A.
Customer satisfaction	1: Overall satisfaction (1 = "very dissatisfied," 10 = "very satisfied")	.901	.766
	2: Expectancy disconfirmation (1 = "falls short of expectations," 10 = "exceeds expectations")	.895	
	3: Performance versus the customer's ideal service provider in the category (1 = "not very close to ideal provider," 10 = "very close to ideal provider")	.827	
Affective commitment[a]	1: I take pleasure in being a customer of the company.	.798	.692
	2: The company is the operator that takes the best care of their customers.	.837	
	3: There is a presence of reciprocity in my relationship with the company.	.825	
	4: I have feelings of trust toward the company.	.865	
Calculative commitment[a]	1: It pays off economically to be a customer of the company.	.862	.630
	2: I would suffer economically if the relationship were broken.	.833	
	3: The company has location advantages versus other companies.	.674	

[a] Agree–disagree scale (1 = "strongly disagree," 10 = "strongly agree").
Notes: N.A. = not applicable.

Churn Measures

We include customer satisfaction (CS_t), affective commitment (AC_t), calculative commitment (CC_t), a situational trigger condition (ST_t), and a reactional trigger condition (RT_t), all in time t, to predict churn in time t + 1 ($Churn_{t+1}$) using ordinary least squares regression. We collected the survey variables from customers who were using fixed-phone, cellular phone, modem-based Internet, or broadband Internet service at time t. We matched the periodic survey data with customers' account data for the service through their telephone number and an identification number. The account data included a monthly churn measure for each customer beginning with the first periodic survey in April 2003 and continuing through August 2004 (17 months). Because the survey is periodic, a complete 17 months of behavioral data are available only for a small sample of customers. To retain our sample size, we explored relatively short windows for churn. We explored measures of the total amount of churn, which we defined as the total number of months over a given period that the customer was not retained, over a 3-, 6-, and 9-month period. Because there was more variation using the 9-month cumulative churn measure, we relied on this measure to test our predictions.

Thus, we surveyed our test sample from April to November of 2003, with nine months of account data available through August 2004. Because customers were using the service in question (or were retained) in the month they responded to the survey, $Churn_{t+1}$ captures the total months of churn in the nine months following the survey. The average churn is 3.52 months (standard deviation [s.d.] = 3.738). Because we surveyed respondents over different time periods, we used the month in which we surveyed the

TABLE 2
Correlation Matrix of Latent Variables, Triggers, and Churn

	CS_t	AC_t	CC_t	ST_t	RT_t	$Churn_{t-1}$	$Churn_{t+1}$
AC_t	.748 (.000)						
CC_t	.519 (.000)	.545 (.000)					
ST_t	–.243 (.000)	–.225 (.000)	–.173 (.000)				
RT_t	–.256 (.000)	–.248 (.000)	–.143 (.000)	–.191 (.000)			
$Churn_{t-1}$	–.090 (.000)	–.088 (.000)	–.117 (.000)	.035 (.065)	–.033 (.086)		
$Churn_{t+1}$	–.130 (.000)	–.119 (.000)	–.150 (.000)	.054 (.005)	–.010 (.606)	.757 (.000)	
$Fixed_t$	.050 (.009)	.051 (.008)	.054 (.005)	.016 (.401)	–.025 (.198)	–.265 (.000)	–.254 (.000)

Notes: N = 2715; significance levels are in parentheses (two-tailed test). CS = customer satisfaction, AC = affective commitment, CC = calculative commitment, ST = situational trigger, and RT = reactional trigger.

customer as a fixed factor in our preliminary analysis of churn. This time factor did not approach significance, and thus we omitted it from further analyses.

Preliminary estimation of the churn models also included a four-level fixed factor to capture differences in the type of service studied. We included all possible interaction effects involving this fixed factor and found only a main effect difference in average months of churn among the fixed-phone customers (1.93) and the other services (4.09). For parsimony, we collapsed the four-level factor into a dummy variable, $Fixed_t$, to indicate fixed-phone service; we included this as a control variable.

It is important to control for heterogeneity across customers when predicting retention (Mittal and Kamakura 2001). Churn data were available for the four months before the month during which a customer was using a service and participated in the periodic satisfaction survey. We define $Churn_{t-1}$ as the total number of months in which customers were not using the service before the survey; the average is 1.46 months of prior churn (s.d. = 1.749). Use of this prior churn as a state-dependent variable to predict future churn helps control for heterogeneity. It explains variation in churn due to the inherent predisposition of some customers to switch and others to remain loyal. We also explore the potential for a weaker satisfaction–retention relationship among those customers who are predisposed to churn.

Churn Models and Results

The analyses all assume that the relationships between the latent variables and our churn measure are linear. Recall that Mittal and Kamakura (2001) find a nonlinear (marginally increasing) relationship between vehicle satisfaction and repurchase. Although our churn measure is relatively short term (ranging from zero months of churn to nine complete months of churn), we estimated nonlinear relationships between each of our key latent variables (customer satisfaction, affective commitment, and calculative commitment) and churn. In each case, the linear component was significant, whereas neither the quadratic nor cubic terms approached significance. This suggests that the relationships are essentially linear.

Given the collinearity among the latent variables and their interaction terms, we use a series of regression equations to predict churn. We first estimate the effects of prior performance, in the form of overall customer satisfaction, on churn. We include the effects of prior churn to capture heterogeneity and type of service as a control variable:

$$(1) \quad Churn_{t+1} = \beta_0 + \beta_1 CS_t + \beta_2 Churn_{t-1} + \beta_3 Fixed_t,$$

where $Churn_{t+1}$ is the total months of churn (0–9) postsurvey, CS_t is customer satisfaction measured in the survey at time t, $Churn_{t-1}$ is total months of churn (0–4) presurvey, and $Fixed_t$ is a dummy variable to capture whether the service involved fixed-phone service. Table 3 reports the standardized parameters for the churn equations and their significance; it also reports the variance explained for each equation.

Equation 1 shows significant effects of customer satisfaction, prior churn, and fixed-phone service. Churn decreases with satisfaction, increases with prior churn, and decreases for fixed-phone customers. That satisfaction predicts behavior is consistent with previous studies (Bolton 1998; Bolton and Lemon 1999; Mittal and Kamakura 2001). That prior churn influences future churn is consistent with Mittal and Kamakura's (2001) findings that there is significant heterogeneity in the satisfaction–retention relationship. The standardized parameters suggest that prior churn has a relatively large effect on churn. As we describe subsequently, the relatively short time horizon involved helps explain this result.

In our second churn model, we explore whether addition of the commitment constructs adds significant predictors of churn:

$$(2) \quad Churn_{t+1} = \beta_0 + \beta_1 CS_t + \beta_2 AC_t + \beta_3 CC_t + \beta_4 Churn_{t-1} + \beta_5 Fixed_t.$$

When we include affective and calculative commitment in the model, all previously included variables remain signifi-

TABLE 3
Churn Model Results

Churn Model	R²
Model 1: $\text{Churn}_{t+1} = -.061\text{CS}_t + .737\text{Churn}_{t-1} - .056\text{Fixed}_t$ (.000) (.000) (.000)	.579
Model 2: $\text{Churn}_{t+1} = -.040\text{CS}_t + .000\text{AC}_t - .040\text{CC}_t + .734\text{Churn}_{t-1} - .055\text{Fixed}_t$ (.036) (1.000) (.008) (.000) (.000)	.581
Model 3: $\text{Churn}_{t+1} = -.065\text{CS}_t - .039\text{CC}_t + .735\text{Churn}_{t-1} + .038\text{CS}_t \times \text{Churn}_{t-1} - .055\text{Fixed}_t$ (.000) (.008) (.000) (.022) (.000)	.581
Model 4: $\text{Churn}_{t+1} = -.068\text{CS}_t - .038\text{CC}_t + .734\text{Churn}_{t-1} + .014\text{ST}_t + .001\text{RT}_t + .039\text{CS}_t$ (.001) (.010) (.000) (.336) (.963) (.018) $\times \text{Churn}_{t-1} - .001\text{CS}_t \times \text{ST}_t + .015\text{CS}_t \times \text{RT}_t - .056\text{Fixed}_t$ (.931) (.379) (.000)	.582

Notes: We report the standardized coefficients, with significance levels in parentheses (two-tailed test).

cant. Whereas calculative commitment becomes a significant predictor of churn, affective commitment does not.

Note from Table 2 that customer satisfaction and affective commitment are highly correlated latent variables. If we remove customer satisfaction from Equation 2, the main effect of affective commitment becomes significant. Although our top-down, or theoretical, analysis of reliability and discriminant validity supports separate satisfaction and affective commitment constructs, their correlation and our results suggest that they are capturing similar information. To understand this issue better, we conducted an exploratory principal components analysis of the survey measures (with Varimax rotation). This bottom-up, or data-driven, analysis reveals two principal components with eigenvalues greater than one; these account for 62.9% of the variation in the survey measures. The three measures of customer satisfaction and the four measures of affective commitment load highest on the first component (average loading = .759), whereas the four measures of calculative commitment load highest on the second component (average loading = .727). This analysis demonstrates that both satisfaction and affective commitment capture customers' overall evaluation of the offering. In contrast, calculative commitment captures more of the competitive nature of the offering with respect to switching costs or the availability of viable alternatives. In our subsequent churn equations, we keep customer satisfaction and remove affective commitment because satisfaction is the significant predictor.

We then estimate two churn equations to explore the potential for interactions. Customers who are predisposed to churn or switch may be less sensitive to prior-performance information. This suggests that the effect of customer satisfaction on churn is lower for customers who are prone to churn. To explore this prediction, we include the interaction between satisfaction and prior churn as follows:

$$(3)\quad \text{Churn}_{t+1} = \beta_0 + \beta_1\text{CS}_t + \beta_2\text{CC}_t + \beta_3\text{Churn}_{t-1} + \beta_4\text{CS}_t \times \text{Churn}_{t-1} + \beta_5\text{Fixed}_t.$$

Equation 3 reveals a significant interaction between customer satisfaction and prior churn. The significant, positive coefficient for this interaction (.038, $p = .022$) demonstrates that the negative main effect of satisfaction on churn (–.065, $p < .000$) is indeed lower for customers with a history of prior churn. We ran other models (not reported) that represent variations on Equation 3. For example, when we substitute affective commitment for customer satisfaction, we obtain the same pattern of results. When we include other possible two- and three-way interactions, they are not significant.

Finally, we explore the potential for the situational and reactional trigger conditions to influence churn. We add to Equation 3 the main effects of the triggers on churn and their potential to moderate the satisfaction–retention relationship:

$$(4)\quad \text{Churn}_{t+1} = \beta_0 + \beta_1\text{CS}_t + \beta_2\text{CC}_t + \beta_3\text{ST}_t + \beta_4\text{RT}_t + \beta_5\text{Churn}_{t-1} + \beta_6\text{CS}_t \times \text{Churn}_{t-1} + \beta_7\text{CS}_t \times \text{ST}_t + \beta_8\text{CS}_t \times \text{RT}_t + \beta_9\text{Fixed}_t.$$

Although this model replicates the results from Equation 3, none of the trigger main effects or interactions are significant. Again, the addition of all possible two- and three-way interactions to this equation reveals no other significant effects. Thus, Equation 3 captures the consistent predictors of churn in our data.

Discussion and Implications

Customer relationship managers benefit from a thorough understanding of the various factors that drive retention. The customer satisfaction and relationship marketing literature suggests three predictors of retention: overall customer satisfaction, affective commitment, and calculative commitment. Customer satisfaction is an overall evaluation of performance to date, affective commitment captures the trust and reciprocity in a relationship, and calculative commitment captures the existence of switching costs or lack of viable alternatives. Prior research has used only a subset of these constructs to explain behavior.

Our study contributes to the marketing literature in several ways. First, we combine customer satisfaction, affective commitment, and calculative commitment to predict retention. Second, we control for heterogeneity in the satisfaction–retention relationship by incorporating both the main and moderating effects of prior churn. Third, we explore for the potential moderating effects of situational and reactional triggers on the satisfaction–retention relationship. Finally, by combining a telecommunications company's periodic customer survey with longitudinal account data, we provide support for causal relationships between the survey measures and subsequent behavior.

Several important findings emerge. In line with prior studies, customer satisfaction has a consistent negative effect on churn (a positive effect on retention). In contrast, affective commitment does not predict churn when it is included with customer satisfaction. Although Verhoef (2003) finds the opposite result (i.e., affective commitment rather than satisfaction predicts retention), it is important to recognize the differences in measurement variables between his study and ours. Recall that his measure of satisfaction was an aggregate of attribute performance ratings, whereas ours is a latent variable based on three overall evaluations of performance (overall satisfaction, performance versus expectations, and performance versus an ideal provider in the category). Our findings suggest that when satisfaction is measured as an overall evaluation of performance, it indeed predicts churn.

Affective commitment is also measured differently in the two studies. Verhoef (2003) operationalizes affective commitment using agreement ratings for the statements: "I am a loyal customer of XYZ," and "Because I have a strong attachment to (sense of belonging with) XYZ, I want to remain a customer of XYZ." In contrast, our measures of affective commitment are agreement ratings for statements about the pleasure or positive affect in being a customer of the company: whether the company takes care of its customers, the presence of reciprocity in the relationship, and feelings of trust toward the company (for exact wording, see Table 1). Whereas our measures focus more on the theoretical basis of affective commitment, Verhoef's measures are akin to behavioral intentions. However, an exploratory principal components analysis reveals that our satisfaction and affective commitment measures tap the same overall evaluations. Further research should explore ways to delineate satisfaction from affective commitment without relying on behavioral intentions.

Another important finding is that calculative commitment, a construct not included in previous studies of retention, has a consistent negative effect on churn. This calculative commitment is important because it captures the competitiveness of the value proposition. Whereas customer satisfaction and affective commitment focus on perceptions of an offering per se, calculative commitment reflects the viability of competitive offerings. This finding is analogous to research that supports the effects of "should" expectations on customer perceptions. Boulding and colleagues (1993) find that customer expectations about what a company should deliver decreases perceptions of performance. What customers know about competitive offerings presumably affects these "should" expectations.

Two other findings involve the effects of prior churn on future churn. Rather than rely solely on psychometric constructs to explain churn, we included prior churn as a state-dependent variable to explain subsequent churn. This is a relatively simple way for relationship managers to control for the heterogeneity across customers with respect to predisposition to churn. Although prior churn has the largest effect on churn in our equations, we expect that this is due to the relatively short time period involved. With only a nine-month window of behavior to explain, it is difficult for the survey constructs to compete with prior churn. We also find a significant interaction between prior churn and customer satisfaction. Customer satisfaction has more (less) influence on churn for those customers who are inherently prone to stay (switch).

We also explored the potential for situational and reactional trigger conditions to influence churn. The trigger literature suggests that triggers may either lower retention directly or lower the effects of customer satisfaction on retention. However, the triggers did not affect either retention or the satisfaction–retention relationship. Although our study did not detect any trigger effects, the existence of triggerlike effects in other studies (Bolton 1998; Seiders et al. 2005) suggest that they remain an important topic for further research. We expect that our triggers simply take more than nine months to create a switching path.

CRM Implications

Our study suggests that customer relationship managers should include both overall evaluations of performance (e.g., customer satisfaction) and the viability of competitive offerings (e.g., calculative commitment) in periodic surveys used to predict retention. Whereas customer satisfaction is commonly included in such surveys, calculative commitment is not. Calculative commitment helps capture the competitive element that is often missing when predicting retention. The actions that CRM managers take depend on which of these factors has the greatest influence on churn. If customer satisfaction is the key driver, retention programs and efforts should focus on improving satisfaction whether or not competitors are doing the same things. In contrast, if calculative commitment is the key driver, the emphasis shifts to improving the aspects of the value proposition that are more unique to the offering. In other words, calculative commitment forces managers to think beyond improving satisfaction to consider specifically how to improve their competitive advantage.

Of further importance to relationship managers is the need to control for heterogeneity in the satisfaction–retention relationship. We offer a relatively simple solution: Include prior churn in the analysis. This enables relationship managers to understand the effects of customer satisfaction and relationship commitment on retention beyond inherent differences in customers' propensities to churn. Not only are some customers predisposed to stay or to churn, but they are also more or less sensitive to changes in customer satisfaction. By identifying which customers are prone to stay with a provider and likely to respond to satisfaction improvement efforts, managers stand to improve their return on marketing investment.

Although our trigger predictions were not supported, this is still relevant for relationship management. In some highly competitive and dynamic market environments, such as cellular phones, what a company does to keep customers over the next few months may be critical to its survival. Our results show that neither a situational nor a reactional trigger has a significant main effect or moderating effect when added to our churn models. This suggests that relationship managers need not worry about trigger conditions in the short run. In the long run, however, the situation may differ considerably. Our data follow the customers' behavior for only nine months, and triggers often take time to work. Although customers may be aware of a situational or reactional trigger, the effect on actual behavior may be delayed. If such triggers are shown to have an effect over a longer period, identifying them early gives a relationship manager some lead time to intervene and prevent switching.

Finally, our study has implications for researchers who use periodic surveys to explain behavior. Following traditional rules for evaluating the reliability and discriminant validity of latent variables, our analyses support the use of customer satisfaction, affective commitment, and calculative commitment as separate predictors of churn. A subsequent exploratory principal components analysis suggests that satisfaction and affective commitment tap the same customer perceptions, whereas calculative commitment captures something different. Across studies, however, there are considerable differences as to how affective commitment is measured. The challenge for researchers is to find a better way to discriminate satisfaction and affective commitment as backward- versus forward-looking evaluations of an offering.

A limitation of our study is that we explore only nine months of retention. We expect an improvement in the ability of the survey variables and trigger conditions to predict retention as this time frame increases. Another possible limitation is that customers self-selected into the various trigger conditions using the company's own survey. However, we identified the trigger categories using qualitative interviews from a separate sample of the company's customers. More in-depth interviews with the customers who actually responded to the survey would help ensure the more accurate prediction of the type of switching path each customer may be on (Roos 2002).

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Yong Cao & Thomas S. Gruca

Reducing Adverse Selection Through Customer Relationship Management

Adverse selection is an important problem for marketers. To reduce the chances of acquiring an unprofitable customer, companies may screen prospects who respond to a marketing offer. Prospects who respond are often not approved. At the same time, prospects who are likely to be approved are unlikely to respond to a given marketing offer. Using data from a firm's customer relationship management system, the authors show how to target prospects who are likely to respond and be approved. This approach increases the number of customers who are approved and reduces the number of applicants who may defect after being turned down. This method can be extended to new customer acquisition and more effective targeting of costly promotions to migrate customers to higher levels of lifetime value.

> In many businesses, the customers most likely to sign on are precisely the worst customers you could possibly find.
> —Reichheld (1996, p. 76)

> The customers you want to attract don't respond, and the ones you don't want to attract do.
> —Richard E. Mirman, Chief Marketing Officer, Harrah's Entertainment, quoted in Levey (2002, p. 1)

> Most of the people applying for a card with, say, a 12 percent APR, were the last people issuers would approve.
> —Lazarony (2000)

Successful customer relationship management (CRM) begins with acquisition of the right customers. Many writers on CRM issues focus on the identification, valuation, and retention of good customers (e.g., Dowling 2002; Rigby, Reichheld, and Schefter 2002; Verhoef 2003; Winer 2001). A firm should put a great deal of emphasis on discovering who its best customers are and how to find new customers who will be similarly loyal and profitable. At the same time, many companies would benefit immensely from avoiding customers at the other end of the value spectrum (i.e., bad customers).

Bad customers are those who buy only when deep discounts are offered, buy in much smaller quantities than normal, or are otherwise much more costly to serve. In other cases, they defect to another company before their acquisition and other up-front costs are recovered. Unfortunately, in firms' attempts to attract new customers, they often elicit responses from the very type of customer they wish to avoid.

This predicament, known as adverse selection, is most closely linked with the marketing of products such as loans or insurance. However, the experiences of many failed Internet retailers are case studies in how to attract and reward bad customers. A leading online grocer found that 75% of its customers were "price butterflies," bargain hunters chasing deep discounts from one Web site to the next (Reichheld and Schefter 2000). Regrettably, this problem is not limited to online neophytes. Every company has the potential to attract customers whose loyalty and value to the firm are suspect. Long-distance carriers spent billions of dollars courting disloyalty by sending large checks to tempt competitors' customers into switching (Naik 1995). A multi-industry study by McKinsey found that bad customers may account for 30%–40% of a typical company's revenue (Leszinski et al. 1995). It is clear that many firms do a poor job screening out bad customers (Reichheld 1996).

In markets for risk products, the purchase of the product imposes risks on the seller rather than on the buyer (Mitchel 2002). In such situations, a company's survival depends on its decisions about which customers to seek and acquire. These firms use a screening process to determine whether a customer responding to an offer should be approved. This step reduces the likelihood of acquiring an unprofitable customer. Ultimately, many people who respond to a favorable marketing offer will not be approved. At the same time, because the most attractive prospects for any offer are likely to have many alternatives from which to choose, they are less likely to respond.

The problems of adverse customer selection are exacerbated for firms attempting to cross-sell (or up-sell) a product to their existing customers. Several recent articles have tried to understand why customers would be interested in buying more from the same company. Some determinants of cross-buying that have been studied thus far include ownership of other products from the same firm (Kamakura, Ramaswami, and Srivastava 1991), satisfaction with those

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products (Wangenheim 2004) and their prices (Verhoef, Franses, and Hoekstra 2001), and environmental factors, such as technological volatility (Stremersch et al. 2003).

The core of any relationship is loyalty and respect (Fournier, Dobscha, and Mick 1997). By soliciting a response to an offer from an existing customer and then rejecting that customer's response, the firm shows contempt for its relationship with that customer. It is likely that such consumers may reduce their commitment to the firm or defect completely. Such a reaction by consumers has a real economic cost in lost future revenues and other benefits, such as positive word-of-mouth advertising and referrals of new customers (Reichheld 1996).

Fortunately, for firms implementing CRM, there is a solution to the twin problems of adverse selection and costly screening. In this article, we develop a modeling framework to identify the customers who are more likely to respond to an offer and to become more profitable customers (i.e., by being approved for the product). Using data from a major financial institution, we show that our approach to prospect selection results in more approvals and fewer rejected customers. Overall, these effects result in increased profitability.

We provide a practical method for effectively implementing cross-selling activities, a cornerstone to increasing profitability through CRM (Dowling 2002). Specifically, we show how CRM enables a firm to target its marketing efforts better to current customers (Rigby, Reichheld, and Schefter 2002). Furthermore, this modeling framework can be easily extended to parallel cross-selling situations, such as those involving costly sampling of nonfinancial products.

Modeling Framework

In this article, we focus on the situation in which a firm tries to cross-sell a product to its existing base of customers through direct marketing. This is a key situation in which CRM technology can fulfill its promise to improve firm performance (Rigby, Reichheld, and Schefter 2002, p. 6). Because we are focusing on marketing a risk product, we assume that the firm incurs substantial costs to screen its customers and that not all of the customers who respond to the offer will be approved. (We discuss the extension of this framework to the situation of marketing nonrisk products subsequently.)

Typically, a direct marketing campaign has two phases. In the first phase, a relatively small sample of the population is selected to evaluate and respond to a particular offer from the firm. The results of this test (i.e., who responded and who did not) are combined with the firm's data about these customers to develop a prospect selection model. The prospect selection model links observed behavior with household characteristics, such as prior purchase behavior and geographic, demographic, and lifestyle variables, to predict response probability. By ranking the remaining customers from the most likely to the least likely to respond to an offer, the firm can select the most promising set of customers for a larger solicitation. During the second phase, the company contacts only those prospects who are most likely to respond.

Prospect Selection Under Adverse Selection

Under adverse selection, there are limitations to the traditional approach of selecting prospects on the basis of their propensity to respond. Although the firm would elicit many responses, most of these prospects are unlikely to be approved. Therefore, the number of rejected customers will be high, and it is possible that this rejection could damage the firm's relationships with these customers.

An alternative is to use screening criteria to identify prospects that would be approved if they responded to the offer. Financial institutions use this approach when they use third-party credit data to solicit customers with offers of preapproved credit cards. However, the best customers are unlikely to respond to any particular offer because they have more options than do less desirable customers. To illustrate this point, consider the response to a major bank's mailing of approximately two million preapproved credit card applications. At the end of the campaign, the bank issued only 15,000 new credit cards, a response rate of less than 1% (Ausubel 1999). The response rate was low despite the bank's offering various levels of favorable introductory rates and time periods.

Adverse selection necessitates the costly screening of customers who respond to a firm's offer. The customers who are deemed acceptable will be approved, and the others will be rejected. For a firm to identify the best prospects from its remaining customers, it must understand the factors that drive response and approval. This entails the development of a model that enables the firm to identify prospects who are likely to respond and to be approved. We illustrate this process in Figure 1.

Using this simultaneous approach, we can identify prospects who are likely to respond and to be approved. As a result, the number of approvals should be higher than either alternative we previously discussed. This is due to the lower number of rejected applications compared with the approach in which prospects are selected solely for their propensity to respond. We also expect a greater number of responses from using our simultaneous approach than from selecting prospects on the basis of their likelihood to be approved. Thus:

> H_1: Under adverse selection, identifying prospects using a simultaneous model of response and approval likelihoods results in (a) a greater number of approvals than selecting prospects on the basis of their likelihood to be approved and (b) fewer rejections than selecting prospects on the basis of their likelihood to respond.

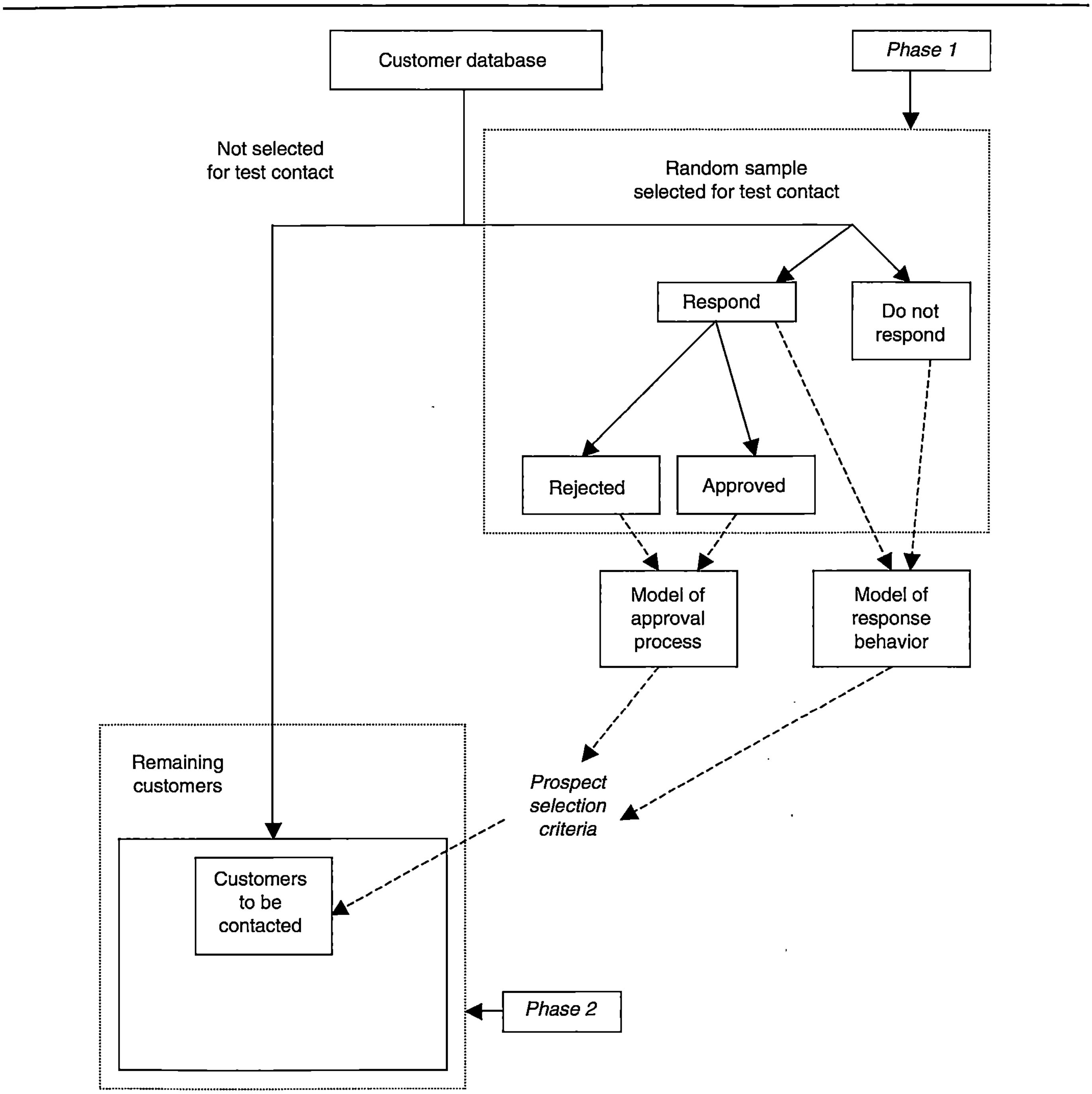
In the next section, we present the results of an empirical study that demonstrates the use of a simultaneous model for prospect selection under adverse selection, and we provide a comparative evaluation of the financial impact of using this modeling framework.

Empirical Study

Setting and Sample

Our data were provided by a major financial institution that was considering a large mailing for a new secured loan product. We were provided with a random sample of 11,710

FIGURE 1
Prospect Selection Under Adverse Selection and Costly Screening


Customer database
Phase 1
Not selected for test contact
Random sample selected for test contact
Respond
Do not respond
Rejected
Approved
Model of approval process
Model of response behavior
Remaining customers
Prospect selection criteria
Customers to be contacted
Phase 2

records from a larger test mailing that used the bank's database. To test our hypothesis, we divided the entire sample into an estimation (two-thirds) and holdout (one-third) sample. The estimation sample consisted of 7854 households, 3844 of which responded and 1414 of which were approved. The holdout sample included 3856 households, 1870 of which responded and 690 of which approved.

The company that provided the data for this study was concerned about revealing the true response rates for this test mailing; this was information the company considered confidential. Therefore, rather than using the entire sample of nonrespondents, they provided a random sample of nonrespondents that was approximately the same size as the number of respondents (i.e., a synthetic retrospective sample; see Mantel 1973). This sampling method affects only the estimation of the intercept term, not the other parameters in a binary response model. This bias in the intercept term does not affect the use of a model estimated on data of this type for ranking purposes, because the intercept is the same for every observation by definition.

Household Information on Credit History and Experience

For this sample of customers, the company's CRM system provided measures of each household's general credit history and experience. We describe these items in Table 1. The credit status and history variables supply a great deal of detailed but redundant information about the household. To reduce the overlap across these indicators, we used principal components analysis to reduce this set of variables to a more manageable number of factors (i.e., related linear combinations of the original measures).

From the original set of 24 measures, we identified six factors that accounted for 72% of the total variance in our sample. We present a Varimax rotation of the factor loadings in Table 2. The first factor is associated with the borrower's use of credit compared with current limits. We designate this factor "credit limits." A higher score on this factor indicates that a borrower is using a high percentage of the credit available to him or her. This reduces the attractiveness of the borrower for many lenders (Delaney 1997). The second factor is related to recent approvals for bank cards, including premium bank cards. We call this factor "new bank cards." Borrowers with a high score on the third factor, which we designate "payment problems," have a less desirable payment history for unsecured debt. The fourth factor is related to the number of finance company accounts specifically and the total number of accounts in general. We designate this factor "finance company accounts." Both the second and fourth factors are related to the breadth of credit the borrower uses. The fifth factor measures the length of credit history and is so named. Only one measure, the number of inquiries, has a high loading on the sixth factor (i.e., "inquiries").

The factors identified in our sample are consistent with the categories of inputs that commercial suppliers of credit scores use (Delaney 1997). In our empirical study, we use the factor scores as indicators of creditworthiness. In addition to these measures of general creditworthiness, we were also provided with a measure of recent payment history with respect to mortgage payments. The credit-scoring firm Fair Isaac considers such data important in evaluating secured home loans (Delaney 1997).

TABLE 1
Measures of Credit History and Experience

Measure	Sample Mean
Average number of months that accounts are on file	78.68
Months on file	142.70
Months since most recent account opened	20.95
Months since most recent bank card account opened	29.42
Number of accounts	15.03
Number of accounts ever 30 or more days past due	2.46
Number of accounts 30 or more days past due in 24 months	1.22
Number of bank card accounts open in 6 months	.15
Number of bank card accounts open in 24 months	.80
Number of bank cards, finance, personal revolving accounts	4.51
Number of currently active personal finance accounts	.29
Number of different subscribers	12.37
Number of finance accounts verified in 12 months	1.44
Number of inquiries	2.97
Number of premium bank card accounts open in 24 months	.18
Number of public record and account line derogatory remarks	1.00
Number of satisfactory finance company revolving accounts	.84
Percentage of accounts never delinquent	78.45
Percentage of active accounts with positive balance	67.27
Percentage of bank card accounts greater than 50% of limit	29.00
Ratio: balance to high credit	44.26
Ratio: bank card balance to high credit	2.94
Ratio: retail balance to high credit	16.24
Ratio: revolving balance to high credit	33.39

Lifestyle Determinants of Demand

The theory of adverse selection suggests that people who respond to an offer for a secured loan product are likely to be greater credit risks than nonrespondents, but creditworthiness is not the only determinant of demand. Canner, Durkin, and Luckett (1998) find that households that have home equity loans or lines of credit tend to have higher incomes and higher levels of education. Most of these borrowers are between the ages of 35 and 64 years. These households are also more likely to have substantially more equity in their homes. In addition, data from the 2002 American Home Survey show that married households are also more likely to have a home equity loan.

The financial institution augmented its database of credit data with measures indicating income, age, marital status, presence of children in the home, and occupation. The income data (INCOME) was estimated by means of microlevel geodemographic data (e.g., census tract averages). We did not have data beforehand about a prospect's actual level of home equity. Therefore, we used a proxy measure, an estimate of the average mortgage amount (MORTGAGE) from a small area sample. All else being equal, households with higher mortgages might be less interested in a home equity loan because they may have recently refinanced their first mortgage, leading to a higher current payment (Canner, Durkin, and Luckett 1998). We included an indicator for households headed by a single adult (SINGLE) because we expect such households to be less likely to use this type of product. Because education expenses are a major use for home equity loans (Canner, Durkin, and Luckett 1998), we also included an indicator for the presence of children in the home (CHILDREN). Although we did not have access to data on the borrower's level of education, we used occupation as a proxy. We constructed an indicator (MANAGER) for the households that owned their own business, were professionals or executives,

TABLE 2
Factor Loadings for Measures of Credit History and Experience

Measures	Credit Limits	New Bank Cards	Payment Problems	Finance Company Accounts	Length of Credit History	Inquiries
Ratio: bank card balance to high credit	.903	.163	.045	.107	.075	–.062
Percentage of bank card accounts greater than 50% of limit	.893	.144	.038	.088	.065	–.059
Ratio: revolving balance to high credit	.866	–.055	.165	.074	–.098	.028
Ratio: balance to high credit	.653	–.192	.202	.062	–.317	.134
Percentage of active accounts with positive balance	.631	–.230	.088	.112	–.288	.195
Ratio: retail balance to high credit	.575	–.184	.226	.051	–.132	.081
Number of bank card accounts open in 24 months	.050	.833	–.136	.109	–.212	.038
Number of bank cards, finance, personal revolving accounts	–.060	.752	–.098	.409	.278	–.090
Number of premium bank card accounts open in 24 months	–.195	.740	–.196	.107	.005	–.004
Number of bank card accounts open in 6 months	–.006	.669	–.155	–.055	–.239	.106
Number of accounts ever 30 or more days past due	.251	–.104	.908	.100	–.021	.053
Number of accounts 30 or more days past due in 24 months	.240	–.085	.839	.102	–.062	–.006
Number of public record and account line derogatory remarks	.013	–.129	.817	–.151	–.114	.128
Percentage of accounts never delinquent	–.136	.295	–.778	.274	.210	–.044
Number of finance accounts verified in 12 months	.224	–.045	–.021	.836	–.231	.076
Number of satisfactory finance company revolving accounts	.074	.129	–.135	.806	–.032	–.074
Number of accounts	.060	.536	.051	.751	.168	.075
Number of different subscribers	.026	.625	–.002	.678	.239	.011
Number of currently active personal finance accounts	.272	–.311	.168	.398	–.296	.225
Average number of months accounts on file	–.210	.036	–.131	–.078	.862	–.005
Months since most recent bank card account opened	.011	–.163	–.176	.062	.708	–.112
Months on file	–.126	.142	–.072	.116	.616	.591
Months since most recent account opened	–.152	–.226	.059	–.401	.540	–.103
Number of inquiries	.166	.044	.187	.007	–.171	.819
Eigenvalue (unrotated solution)	5.9	4.8	2.1	2.0	1.5	1.1

Notes: We used principal components analysis with Varimax rotation.

or held middle-management positions. For age, we created separate indicators for the 35–44 age group (35T44), the 45–54 age group (45T54), the 55–64 age group (55T64), and the 65 and over age group (65PLUS). We expected higher levels of response from the 35–55 age groups. We were also provided with a variable that indicated whether this household had responded to a mail solicitation from a financial services firm in the recent past (MAILBUY). We list these variables in Table 3.

To test our hypotheses, we compared the prospects identified using the proposed simultaneous response and the approval model with prospects selected solely on the basis of their response probability and the prospects with the highest likelihood of being approved. We began by dividing the entire sample into an estimation sample and a holdout sample as we previously discussed.

We used the model parameters from the estimation sample to identify prospects in the holdout sample using the same criteria. For example, using the estimated parameters of a model of response likelihood, we computed the probability that a prospect in the holdout sample would respond to the offer. This information provided a rank ordering of all elements of the holdout sample with respect to their attractiveness as a prospect.[1]

TABLE 3
Lifestyle Determinants of Demand for Secured Loan Products

Measure	Description	Sample Mean
INCOME	Estimated income/$10,000	46.30
MORTGAGE	Estimated mortgage	64,601.09
SINGLE	Head of household is single	.07
CHILDREN	Presence of children under the age of 18	.16
MANAGER	Borrower is a business owner, professional, executive, or middle manager	.04
35T44	Borrower is between the ages of 35 and 44 years	.38
45T54	Borrower is between the ages of 45 and 54 years	.27
55T64	Borrower is between the ages of 55 and 64 years	.13
65PLUS	Borrower is 65 years of age or older	.04
MAILBUY	Household responded to mail solicitation from a financial company recently	.08

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[1] The response and approval rates for the validation sample will be overstated compared with actual results, given the artificially high response rate in our synthetic retrospective sample. However,

To proxy the selection of the best prospects from the remaining customers (e.g., for the simultaneous model of response and approval, see Phase 2 in Figure 1), we compared the expected results for the top 30% of the prospects for each alternative method. The differences between the methods are more pronounced for smaller subsets of the holdout sample (10% or 20%). However, we chose this larger subset to avoid appearing as if we capitalized on chance variations in smaller samples (e.g., there are fewer than 60 approvals in the first decile of prospects chosen for their response likelihood). We discuss these empirical results subsequently.

Prospect Selection Based on Response Likelihood

The first model focused on the probability that a household would respond, given the household's creditworthiness and other lifestyle characteristics that we previously discussed. Using a binary probit formulation, we modeled the responses on the 7854 households in the estimation sample, 3844 of which responded to the offer. The resultant coefficient estimations appear in Table 4 (Column 2). The overall chi-square fit statistic for the model is significant at the $p < .01$ level.

Households with lower incomes and lower mortgages and applicants between 35 and 64 years of age were more likely to respond. Previous response to direct mail was also positively associated with a response to this offer. Neither marital status (SINGLE) nor the presence of children in the home (CHILDREN) was a significant determinant of the propensity to respond to the offer. Business owners and middle managers (MANAGER) were also less likely to respond. A possible explanation for this is that occupation is a poor choice for a proxy variable in this sample. Alternatively, because these customers probably have higher incomes, they might be better able to afford refinancing to extract equity or to combine various types of debt (e.g., first mortgages, credit card debt) into a new mortgage.

The impact of the creditworthiness factor scores provides clear evidence of adverse selection. Poor mortgage payment performance, a higher ratio of credit used to available credit, a greater number of inquiries, a shorter credit history, and more indicators of problems with prior payment history were all positively associated with an increased probability of responding to this offer. The respondents were also less likely to have been recently approved for a new bank card and had less broad credit experience.

TABLE 4
Estimation Results

Variable	Response-Oriented Selection Model	Approval-Oriented Selection Model	Simultaneous Response and Approval Selection Model (Bivariate Probit Model)	
	Coefficient	Coefficient	Response Coefficient	Approval Coefficient
Constant	.1459**	–.8363**	.1453*	–.8727**
Credit limits	.1985**	.0092	.1983**	.0163
New bank cards	–.1891**	.0377	–.1890**	.0309
Payment problems	.2983**	–.2961**	.2984**	–.2860**
Finance company accounts	–.0897**	.0823**	–.0899**	.0791**
Length of credit history	–.1915**	.0025	–.1911**	–.0034
Inquiries	.1262**	–.0572**	.1260**	–.0533*
INCOME	–.0032**	.0128**	–.0031**	.0126**
MORTGAGE	–3.80E–06**	8.22E–07	–3.80E–06**	6.67E–07
Number of 30 day or worse ratings on mortgage accounts	.0411**	–.0557**	.0410**	–.0540**
SINGLE	.0810	—	.0838	—
CHILDREN	.0403	—	.0419	—
MANAGER	–.1585*	—	–.1578*	—
MAILBUY	.2169**	—	.2184**	—
35T44	.1994**	—	.1992**	—
45T54	.2085**	—	.2078**	—
55T64	.1734**	—	.1702**	—
65PLUS	.1229	—	.1172	—
Chi-square (model)	1618.9**	352.7**	.54	p (error correlation) .062

*$p < .05$.
**$p < .01$.

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the results are comparable across models, which is the key to our analyses.

Using these results, we predicted the probability of response for the holdout sample of 3856 households. We then ranked the results and assigned each household to one of ten (nearly) equally sized segments (i.e., deciles). We expected that the households in the highest decile would be the most likely to respond to the offer.

Because we have the actual response data (and approval data) for these households, we can examine how well the response-oriented selection model would have performed if it were used to score the profiles of the holdout sample. The average response rate for the top three deciles is 72%, compared with 38% for the remaining deciles. However, the approval rate for these same households was only 26%, compared with the rate of 46% for the remaining prospects. Therefore, under adverse selection, selecting prospects on the basis of response likelihood results in a predictably high response rate but a low approval rate.

Prospect Selection Based on Approval Likelihood

Selecting prospects using approval as the dependent variable involves a change in the sample to accompany the change in the dependent variable. We can only model the probability of approval using data from that subset of customers who responded to the offer. This means restricting ourselves to the 3844 observations for which we have data on the outcome of the approval decision. To predict approval, we relied on the key income-, credit-, and mortgage-related variables.

The modeling of approval as a probabilistic process might seem unnecessary in today's environment of automated credit scoring and online credit card approvals. However, in this particular application, important variables such as current income and size of mortgage are unknown at the time of prospect selection, and verification of such information is an important component of the costs of screening applicants.

Using a binary probit model, we estimated the approval likelihood for the households in the estimation sample that had responded to the offer. The resultant coefficient estimations appear in Table 4 (Column 3). The overall chi-square fit statistic for the model is significant at the $p < .01$ level.

Applicants with higher incomes, good records of keeping current with mortgage payments, and fewer inquiries into their credit history are likely to be approved. In addition, applicants with a recent approval for a bank credit card are likely to be approved, whereas applicants with poor records of payment on unsecured debts are less likely to be approved. We used the results from this second model to estimate the approval probabilities for all 1870 households in the holdout sample. We then ranked the households and assigned them to deciles; again, those in the highest decile were the most likely to be approved.

Using the actual approval data for the validation sample, we observe how well this approach would have performed had it been used to identify prospects. If we consider only the customers who responded, the approval rate for a mailing to the top three deciles of this sample (62%) is greater than the approval rate (32%) for the remaining applicants. However, the response rate for the top three deciles is much lower (28% versus 57% for others in sample).

Consistent with the executives' experiences reflected in the opening quotations, households that are likely to be approved for the offer are the same ones that are less likely to respond. This is because good customers (e.g., customers with more favorable credit ratings) receive a large number of offers, including those from companies trying to acquire them as a new customer. Thus, their propensity to respond to any one particular offer is predictably quite low.

Prospect Selection Based on Response and Approval Likelihoods

To identify prospects who are likely to both respond to our offer and be approved, we need to consider two dependent variables: response and approval. If we follow the probit model formulations, we have the following system of equations to estimate:

$$(1) \qquad \begin{cases} R = \beta_1 X_1 + \mu \\ A = \beta_2 X_2 + v \end{cases},$$

where X_1 and X_2 are descriptors of the individual household. These include the measures of creditworthiness, income, mortgage, and lifestyle characteristics that we previously discussed. The dependent variable R is the observed response to the offer (0/1). The dependent variable A is the observed binary approval outcome (0/1). Note that the dependent variable A is observed only when the other dependent variable R (response) has a value of 1. We further assume that the error terms μ and v follow a standard bivariate normal distribution and that the correlation between the error terms (μ, v) equals ρ.

That the dependent variable A (approval) is observed only when the other dependent variable R (response) has a value of 1 introduces the possibility of bias in the estimates of the approval prediction equation. One source of this bias may be an omitted variable (or a set of correlated variables) that explains both response and approval. To estimate such a system, we used a bivariate probit model with sample selection (Meng and Schmidt 1985). This formulation is often used in the credit-scoring literature (Banasik, Crook, and Thomas 2003; Boyes, Hoffman, and Low 1989; Jacobson and Roszbach 2003).

The simultaneous estimation of the response and approval models is only the first step. We must then combine the resulting information to identify households that are likely to respond and to be approved. To identify such prospects, we estimate the probability that both R = 1 and A = 1. This probability is given by the following:

$$(2) \qquad P(R = 1 \text{ and } A = 1) = \Phi 2(B_1 X_1, B_2 X_2, \rho),$$

where $\Phi 2$ is the cumulative bivariate standard normal distribution, B_1 and B_2 are the parameters estimated in the system given in Equation 1, and ρ is the correlation between the error terms. The terms X_1 and X_2 are the respective variables used to predict response and approval, as we previously noted.

For our empirical study, we estimated the system of equations (Equation 1) using the bivariate probit with the selection procedure in LIMDEP. The results appear in

Columns 4 and 5 of Table 4. Because we observe the responses of the entire estimation sample, there should be little difference between the coefficients of the response model in the bivariate probit system (Table 4, Column 4) and those in the preceding response model (Table 4, Column 2). The differences are negligible.

Contrary to our expectations, we find that the correlation between the error terms in the two equation system is not statistically significantly different from zero ($\rho = .062$, $p < .83$).[2] This implies that the estimates of the coefficients of the approval model are not significantly biased because of their being estimated with only the subset of respondents. This result is confirmed by two other findings. First, in comparing the coefficients for the stand-alone approval model (Table 4, Column 3) and the coefficients estimated for the approval model in this simultaneous system (Table 4, Column 5), we find few, if any, differences. Second, we find that the improvement in the fit of the bivariate probit model over the separate response and approval probit models is not significantly different from zero ($\chi^2 = .54, p < .46$, degree of freedom = 1).

The estimated coefficients of the response and approval models in the simultaneous model (Equation 1) do not differ significantly from those estimated by the separate models. However, the prospects we identified using the formula in Equation 2 yield different results. By avoiding elicitation of responses from prospects who will ultimately be rejected and by reducing the number of prospects unlikely to respond, the simultaneous approach to identifying prospects should result in better outcomes for the company.

To identify prospects who are likely to respond and to be approved, we used the estimated coefficients from the system in Equation 1 as inputs into Equation 2.[3] Using the independent variables for each household in the holdout sample, we computed the probability that a given household would respond and be approved. As before, we ranked the entire holdout sample and separated the households into deciles. The households in the highest decile are the most likely to respond and to be approved.

Using the actual response and approval results for the holdout sample, we determined the expected number of responses and approvals for each decile. Concentrating on the first three deciles again, we observe the superiority of this simultaneous approach to prospect selection. The response rate is lower (60%) than that for the approach that focuses on selecting prospects on the basis of their response likelihood (72%). The approval rate (41%) is lower than that for the approval-focused selection approach (62%). However, this combined approach results in more approved customers overall (284 versus 198 for approval-based selection). This finding supports H_{1a}. In addition, the simultaneous approach results in fewer rejected customers (405 versus 624 for approval-based selection), in support of H_{1b}.

It is worthwhile to compare the number of approvals for each method of identifying prospects with random selection. A random selection of 30% should yield 30% of the approvals. The top three deciles of prospects based on response likelihood yielded 214 (31%) approvals, which is slightly better than random selection. The top three deciles of prospects based on approval likelihood yielded only 198 (29%) approvals, which is actually worse than random selection. This is because so few of the households in the most highly rated deciles actually respond to the offer. In contrast, the prospects identified by our simultaneous model yielded 284 (41%) approvals, a 37% increase over random selection.

Financial Impact

In this section, we attempt to assess the financial impact of selecting prospects using a model focused simultaneously on response and approval probabilities. This entails computing the relative profits, including approval costs for the firm and the potential costs of losing customers who respond to an offer only to be turned down.

We make several simplifying but realistic assumptions in this analysis. First, we restrict ourselves to the top three deciles (30% of the holdout sample) for each method of identifying prospects. Second, we assume that the unit costs of contacting ($2) and approving ($15) are the same for all customers. For the value of the offer to the firm, we continue with our example of a secured loan product. Currently, the average home equity loan is approximately $30,000. Some loans are resold to the secondary market, and others are retained in-house. Without further information, we estimate the value of an approval at 1% of the origination value (i.e., $300).

To estimate the potential value lost if a current customer terminates his or her relationship with the financial institution as a result of being turned down for a secured loan, we assume that the financial institution is using its database of its credit card customers. Reichheld (1996) estimates the average profits from a credit card customer to be approximately $100 per year. A 10% discount rate yields a lifetime value of $1,000.

We do not know the probability that a credit card customer who is turned down for a loan by a bank will drop the credit card associated with that bank. Therefore, we consider two possibilities, a .5% defection rate and a 2% defection rate. In Table 5, we compare the outcomes of mailing the offer to the top 30% of prospects, using each of the alternative prospect selection approaches.

By using the usual direct marketing metrics of response rates and cost per response, the optimal approach would be to emphasize response likelihood in the selection of prospects. In contrast, selecting prospects on the basis of approval likelihood is more efficient because this approach yields the lowest screening cost per approval and the high-

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[2] This result is largely due to the wealth of information we have about each household from the firm's CRM system. For example, if we were unable to obtain estimates for income or mortgage size, the correlation between the error terms for the two equations would be large ($\rho = .46$) and significant ($p < .02$).

[3] In this particular case, the estimates from the separately estimated models would also perform well because the coefficients in the approval model do not suffer from a great deal of bias. However, this situation is likely to be unique to this data set. Managers interested in this method should use the bivariate probit formulation to avoid the usual problems with censored data.

TABLE 5
Financial Comparisons

	Prospect Selection Based on Response Likelihood	Prospect Selection Based on Approval Likelihood	Prospect Selection Based on Likelihood of Response and Approval
Mailing size (top three deciles)	1157	1157	1157
Total contact costs ($2 per household)	($2,314)	($2,314)	($2,314)
Number of responses	835	319	689
Response rate	72%	28%	60%
Contact cost per response	($2.77)	($7.25)	($3.36)
Total screening costs ($15 per response)	($12,525)	($4,785)	($10,335)
Number of approvals	214	198	284
Screening cost per approval	($59)	($24)	($36)
Approval rate	26%	62%	41%
Contact and screening cost per approval	($69)	($36)	($45)
Total revenue ($300 per approval)	$64,200	$59,400	$86,200
Gross profits (without defection costs)	$49,361	$52,301	$72,551
Expected losses due to rejections (½%/2% defection rate and $1,000 lifetime value)	($3,105)/($12,420)	($605)/($2,420)	($2,025)/($8,100)
Net proceeds (½%/2% defection rate)	$46,256/$36,941	$51,696/$49,881	$70,526/$64,451

est approval rate. The simultaneous emphasis on response and approval in selecting prospects is dominated by the other strategies with respect to these functionally oriented metrics.

With respect to the overall profitability of the campaign, the results are different. Selecting prospects on the basis of both their likelihood of response and approval is the most profitable approach. When we incorporate the possible losses of future revenue from the defection of customers who were rejected, our proposed method for identifying prospects remains superior.[4]

Discussion

This article makes an important contribution to CRM research by showing how to reduce the negative effects of adverse selection and costly screening using CRM data. In an empirical study of cross-selling a secured loan product, we show that the negative effects of adverse selection are considerable. They can have a detrimental effect on the profitability of a marketing campaign in the short term. Furthermore, because of rejected customers' potential defections, adverse selection can have an important negative influence on the future profitability of the firm. Our model for selecting prospects on the basis of their likelihood of responding to an offer and being approved relies on the CRM data that most financial firms already possess. This approach is superior to alternative methods for identifying prospects within a database of current customers.

In addition to being more profitable, this modeling approach is more consistent with the goals of CRM insofar as it is sensitive to customers' needs. There is a monetary value in treating all customers, not just the best customers, with respect. For the customers who are unlikely to respond, firms should not bother them with an offer. For those who are unlikely to be approved, firms should not set them up for disappointment. Our proposed modeling framework results in a win-win situation for the firm and all its customers.

This study emphasizes the importance of the method that companies use to identify prospects for cross-selling to their own customers. The selection of a method to identify such prospects depends on two factors. The first of these is the relationship between a household's propensity to respond and the likelihood that it will become a more valuable customer (e.g., be approved). Under adverse selection, these factors have an inverse relationship. The most attractive customers are unlikely to respond, whereas potentially unprofitable customers respond in droves. If the relationship is positive or zero, the second factor, "screening costs," becomes important. The firm must consider the costs of determining whether a prospect will become a more valuable customer. In our empirical study, these were the screening costs. If these screening costs are relatively large, the firm should identify prospects on the basis of their likelihood of becoming a more valuable customer; this increases the chances that costs will be recouped. If these costs are comparatively small, the firm should target prospects who are likely to respond to the offer, thereby increasing the expected number of customers whose value to the company is increased over time. Although these guidelines should hold for companies selling products or services outside the typical boundaries of risk products, more research is necessary to evaluate their effectiveness in practice. In the next sections, we discuss how this modeling framework can be adapted to assist managers with similar marketing problems.

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[4] As with any simulated results, the numbers in Table 5 depend on the assumptions about contact costs, screening costs, and so forth.

Cross-Selling in Nonfinancial Markets

Although our motivating example is a secured loan product, the application of this modeling framework to cross-selling to current customers in associated markets, such as credit cards, lines of credit, home improvement loans, and so forth, is readily apparent. However, it is also worthwhile to consider the extension to nonfinancial markets.

Marketers often face a problem that is parallel to that of costly screening due to adverse selection. Many companies use costly sampling programs to increase a consumer's lifetime value. Consider a cable company that is interested in upgrading customers to a digital service that would necessitate the in-home installation of a decoder box or digital video recorder. Often, the cable company will offer free installation of the equipment and a limited period of reduced fees. This cost is incurred in the expectation that responding households will be sufficiently satisfied to keep the equipment and continue to pay full price for the upgraded service after the expiration of the trial offer.

Using their CRM database, the cable company could determine the characteristics of the type of households that respond to such offers and identify which households tend to continue with the higher-priced services (at least until the installation costs are recovered). By incorporating such information into a bivariate probit model such as the one we previously described, the cable company can more selectively target their promotions to households that are more likely to be profitable over time.

Many firms use costly promotions to move customers from one level of consumption to a higher, more profitable level. By combining offer testing and the data in their CRM systems, such companies can use this modeling framework more profitably to identify good prospects for costly upselling promotions. Such a modeling approach represents an important departure from previous research on cross-buying behavior (e.g., Kamakura, Ramaswami, and Srivastava 1991; Verhoef, Franses, and Hoekstra 2001). In these studies, there is a tacit assumption that firms should try to increase cross-buying and that this is a universally good thing for the firm. However, under adverse selection, firms must also consider whether attempts to broaden their relationship with some customers might be ultimately detrimental to profitability.

Prospecting for New Customers

With some adaptation, this modeling framework can also be used to identify high-quality prospects among noncustomers. For example, when a firm uses an established list to find new customers, it can identify which households responded to a promotion and which ones turned into profitable customers. The next step would be to append identifying information onto this purchasing and profitability data from third-party data vendors.

This augmentation of lifetime value data would enable the firm to build a model to predict which households are likely to respond and which of those become profitable. The model can then be used to guide the firm's selection of future prospects to approach with similar offers. A variation of this method is currently being used by some insurance companies to identify good automobile and home insurance prospects using credit bureau data (Simon 2002).

Limitations and Directions for Further Research

The marketing executives quoted at the beginning of this article suggest that adverse selection is a serious problem for marketers. The customers who are likely to be profitable acquisitions are unlikely to respond, whereas prospects with less favorable future values to the firm are more likely to respond. This article provides the first empirical evidence we know of that supports this widely held view of who responds and who does not respond to marketing offers.[5]

We have shown the impact of adverse selection for an important but limited case of cross-selling risk products. Further research is necessary on the magnitude and impact of adverse selection in the response to promotions, especially costly ones. Whether adverse selection is as significant a problem for new customer acquisition or for companies selling nonrisk products is an important area for further research.

In this study, the firm used a fairly stable model to approve the applications of responding prospects. With nonrisk products, the situation may change. In these applications of our framework, approval is replaced by a customer moving to a new, more profitable level of consumption. How firms should model these transitions and how soon they can identify those who will become highly valued customers is an important extension of our study and a key problem in CRM research in general.

Conclusions

A positive by-product of our approach to customer selection is the inherent coordination between the marketing and the credit functions of the firm that is selling risk products. Selecting prospects on the basis of their likelihood to respond and to be approved removes a major source of conflict. Such interfunctional coordination is a major goal of CRM as a whole (Rigby, Reichheld, and Schefter 2002). Furthermore, our proposed approach to prospect selection addresses an important problem in the customer relationship life cycle, namely, the identification of the right prospects. Its narrow focus and modest goals are consistent with the successes that are now being experienced in CRM practice (Rigby and Ledingham 2004).

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[5] All of the prospects who responded in Aubusel's (1999) study were preapproved for the product being promoted. His results demonstrate adverse selection within a set of prospects who were already judged to be attractive by the firm (i.e., bank approval preceded customer response).

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Michael Lewis

Incorporating Strategic Consumer Behavior into Customer Valuation

The calculation of customer value without regard to marketing policy is problematic because the value of managerial flexibility and the impact of consumer learning are neglected. This article develops a structural dynamic programming model of consumer demand that includes marketing variables and consumer expectations of promotions. The author uses the estimated parameters to conduct policy experiments that yield more accurate forecasts of customer value and to study the impact of alternative marketing policies.

A key idea in customer relationship management (CRM) is that customers should be treated as economic assets. An important corollary to this concept is that firms should identify their most profitable customers and then customize marketing on the basis of customer asset value. As such, the development of methods for forecasting customer value is of increasing importance. Thus far, the majority of customer valuation research has advocated techniques that require strong implicit assumptions about consumer behavior and marketing policies (Berger and Nasr 1998; Blattberg and Deighton 1996; Dwyer 1989). Typically, these techniques assume fixed marketing policies and deterministic retention and revenue rates.

Techniques that compute customer valuations without regard to marketing policy are problematic because they neglect the value of managerial flexibility and the potential for consumer learning. Managerial flexibility is important because as customers make decisions over time, firms can learn about individual customers and adapt marketing policies to the individual customer. However, if firms set policy as a function of transaction history measures, consumers can potentially learn from experience and strategically manage their decisions to receive advantageous terms.

In this article, I illustrate an approach to estimating customer asset value that uses concepts from the marketing science literature to account for several complexities and nuances of consumer behavior. Specifically, I estimate a structural dynamic programming model that replicates consumers' dynamic decision-making process (Erdem and Keane 1996; Gonul and Shi 1998). The model is capable of accounting for the effects of marketing variables, prior purchasing activity, consumer expectations of future promotions, and preference heterogeneity. The estimated parameters are structural in nature and are used to conduct policy experiments that simulate customer response to marketing policies over an extended time period. The simulation results provide an estimate of customer value that is directly connected to marketing decisions. The empirical results show that it is important to consider the complexities of consumer behavior when analyzing customer asset value. Relative to a holdout sample, the simulation-based forecasts outperform standard methods in terms of absolute error and are better able to account for variation in long-term values in a heterogeneous customer base. Furthermore, by varying the prices and promotions used in the simulations, I can estimate the long-term consequences of alternative pricing strategies.

The primary contribution of the research is to the customer valuation literature. The results show how customer asset values are a function of marketing tactics, and they highlight the consequences of strategic decision making by customers. From a substantive perspective, the empirical findings are relevant to the issue of how to price over the stages of a customer relationship. This is an important topic because there is little work on individual-level dynamic pricing, despite the increasing ubiquity of CRM systems that facilitate individual-level marketing (Fudenberg and Tirole 2000). The specific problem I address herein is how to price dynamically to newspaper subscribers. Because the individual-level dynamic pricing policy is implemented with targeted promotional discounts, the results are also relevant to the literature that focuses on the long-term effects of promotions (Boulding, Lee, and Staelin 1994; Dekimpe and Hanssens 1999; Mela, Gupta, and Lehmann 1997; Nijs et al. 2001). This research adds to this literature with results from a novel category and by emphasizing the connection between promotional strategy and CRM.

I organize the article as follows: Next, I describe the empirical context of the study and highlight the logical structure of the demand model. Then, I report the estimation results and detail several policy experiments that forecast customer value for various marketing policies. I conclude with a discussion of managerial issues.

Customer Valuation and Dynamic Consumer Behavior

Customer lifetime value (CLV) is an established concept in database marketing and is growing in relevance to the broader marketing community (Berger and Nasr 1998; Gupta, Lehmann, and Stuart 2004; Jain and Singh 2002). It is typically computed with an equation such as

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$$\text{CLV} = \sum_{t=0}^{T} r^t (R_t - C_t), \tag{1}$$

where t indexes periods, r is the retention rate, R_t is the single-period revenue, C_t is the single-period cost, and T is the time horizon. Critical limitations of standard CLV formulas are that retention and revenue rates are not explicit functions of marketing actions and the firm's ability to adapt tactics based on observed customer behavior is not represented. The standard formulas also lack the ability to incorporate consumer learning and strategic customer decision making.

In this section, I develop a model of consumer behavior that replicates the dynamic nature of consumer decision making. The model includes elements of learning, an economic assessment of current-period choices, and expectations of the consequences of those choices. This model serves as the basis for a series of policy experiments that are designed to forecast customer value and to compare alternative dynamic marketing policies. By accounting for dynamically oriented consumer behavior and the influence of marketing variables, this approach overcomes many of the limitations in existing customer valuation methods.

The analysis uses transaction histories for 1578 customers of a major metropolitan newspaper. The data include monthly records of pricing, promotions, and subscription activity for each person. The average price in the data is $2.40 per week and ranges from $1.75 to $3.00 per week. An important tactic for the firm is to acquire customers using reduced-rate introductory subscriptions. The typical practice is to use direct solicitation to offer prospects and lapsed customers short introductory subscriptions that are discounted by $.50 to $1.25 from the regular weekly price. Following the introductory subscription, customers are asked to renew at the full price. I divide the sample into a 1078-member estimation sample and a 500-member validation sample to test the predictive capabilities of several valuation methods.

The dependent variable of the model is the consumer's decision each month of whether to subscribe. The reward from buying during period t is labeled r_t, and it is assumed to be a function of marketing variables, such as price (P_t) and promotional solicitation (SOL_t). The reward associated with the no-buy option is normalized to zero. Although the decision modeled is a binary buy/no-buy choice, the context in which decisions are made depends on the customer's transaction history and the firm's tactics. For example, a promotional solicitation alters the decision environment for lapsed and prospective customers because a decision to buy when directly solicited is fundamentally different from a decision to resubscribe spontaneously. Likewise, the decision context for current buyers is different at the point of subscription expiration compared with the passive decision to continue to buy during a subscription term.

To account for the differences in context, I estimate separate response functions for each type of choice. I define four decision contexts: current customers at renewal, current customers in the middle of a subscription, solicited lapsed customers, and unsolicited lapsed customers. I use a series of binary variables $d_j(t)$ to indicate whether a purchase is made at time t when the decision context is of type j. I use the $d_j(t)$ terms to define a summary variable D(t), which indicates a purchase at time t, $D(t) = \Sigma_j d_j(t)$. The reward functions and decision indicators may be combined to create a convenient, time-specific reward term R(t), defined as $R(t) = \Sigma_j r_j(t) \times d_j(t)$.

In addition to the effects of price and solicitations, consumer decisions may be affected by prior experience with the firm's marketing practices. To account for the effect of past pricing, I use current and past prices to compute a price-change variable $PINC_t = (P_t - P_{t-1})/(P_{t-1})$. This price-increase term accounts for the possibility that reference price effects (Kalyanaram and Winer 1995) deters consumer demand beyond the effects of the actual price. In addition, I use two binary variables to track experience with prior promotions: PSOL1 is one if a customer has been previously solicited and is zero otherwise, and PSOL2 is one if a customer has received at least two promotional offers. The solicitation history variables are important in two respects. First, that a lapsed customer has been solicited previously may be important information because the decision to decline a promotion may indicate a lack of interest. Second, the use of promotions may influence a person's expectations of future promotions.

I account for consumer experience and loyalty with variables that track months as a current subscriber (F) and months as a lapsed customer (L). These variables are adjusted each month on the basis of a person's buying decision, as in Equations 2 and 3:

$$L(t + 1) = L(t) + 1, \text{ if } D(t) = 0, \text{ and is 0 otherwise.} \tag{2}$$

$$F(t + 1) = F(t) + 1, \text{ if } D(t) = 1, \text{ and is 0 otherwise.} \tag{3}$$

Rather than use these measures directly as covariates, I estimate different response functions for classes of experience. This approach eliminates the need for assumptions about the form of the relationship between experience and preferences (Berger, Bowman, and Briggs 2002). The empirical work uses four transaction history–based categories: long-term lapsed (and prospects), short-term lapsed, new customers, and long-term customers.[1] I index these categories by k and define them in Table 1. I index the reward functions, $r_{jk}(t)$, for transaction history category and choice context. These functions appear in Table 2 and vary

TABLE 1
Transaction History Categories

Index	Category	Definition
k = 1	Long-term lapsed/prospects	L ≥ six months or new prospect
k = 2	Short-term lapsed	L < six months
k = 3	New customers	F < six months
k = 4	Long-term customers	F ≥ six months

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[1] The four-category version outperformed specifications with additional categories based on the Bayesian information criteria (BIC).

TABLE 2
Choice Context-Specific Reward Functions

Decision	Reward Function
Current buyer at renewal (j = 1)	$r_{jk}(t) = \beta_{jk} + \beta_{price,jk} \times P_t + \beta_{pinc,jk} \times PINC_t$
Current subscriber (j = 2)	$r_{jk}(t) = \beta_{jk} + \beta_{price,jk} \times P_t$
Solicited lapsed customer (j = 3)	$r_{jk}(t) = \beta_{jk} + \beta_{price,jk} \times P_t + \beta_{sol,jk} \times PSOL1_t \times SOL_t$
Unsolicited lapsed customer (j = 4)	$r_{jk}(t) = \beta_{jk} + \beta_{price,jk} \times P_t$

in terms of the current and lagged marketing variables that are relevant. The β values are parameters to be estimated.

Marketing actions can also affect consumer decision making by changing expectations of the future availability of discounts. Of particular concern in this application is that consumers may learn from prior promotional activity and anticipate future discounts (Gonul and Srinivasan 1996). A customer's expectation of the probability of a promotional discount, Pr(SOL), is modeled as a function of the consumer's previous experience with promotions:

$$\text{(4)} \qquad \Pr(\text{SOL}) = \frac{\exp(\gamma_0 + \gamma_1 \times \text{PSOL1} + \gamma_2 \times \text{PSOL2})}{1 + \exp(\gamma_0 + \gamma_1 \times \text{PSOL1} + \gamma_2 \times \text{PSOL2})},$$

where the γ terms are to be estimated. This expression gives the expected probability of a solicitation during the next month if a customer chooses to cease purchasing.

The inclusion of expectations necessitates a shift from a single-period choice framework to a dynamic model. I use a dynamic programming structure to replicate the decision-making process when dynamic considerations exist. The model includes factors that affect the merits of current options and a structure that includes dynamic elements. The objective function of a dynamically oriented customer making decisions in response to an evolving environment is

$$\text{(5)} \qquad \max E\left[\sum_{t=1}^{T} \alpha^{t-1} R(t)|S(t)\right],$$

where S(t) is a vector of information about the environment relevant to the customer's dynamic optimization problem, α is a single-period discount factor, and T is the horizon length. The state space vector s(t) includes elements of the marketing mix and customer transaction histories.

The customer's decision problem involves selecting the option in each period that maximizes the expected utility for the remainder of the relevant time horizon. In dynamic programming terminology, the value function, V, is defined as the maximum value of discounted expected utility over the decision horizon. The alternative specific value functions $V_D[S(t)]$ are the expected values of buying (D = 1) or not buying (D = 0) at time t when the state space is S(t) and then selecting optimal actions thereafter. The form of the alternative specific value functions is given in Equation 6, and it underscores that decisions are based on both the immediate reward provided by an alternative and the expected future utility from the next period onward.

$$\text{(6)} \qquad V_D[S(t)] = E[R(t)|S(t)] + \alpha E\{V[S(t+1)]|S(t), D(t)\}.$$

The first term is the current period benefit conditional on the current period state. The second term represents the value function of a process beginning one period in the future. A significant detail is that future benefits can depend on the alternative selected because the evolution of the state from S(t) to S(t + 1) may be conditional on the person's decision, D(t). The relationship between the evolution of a customer's decisions and marketing policy is at the heart of this modeling approach. The customer's state includes transaction history elements, such as prior loyalty, prices, and promotions. Consumer decisions can affect the evolution of the state space by changing the loyalty profile observed by the firm, which may influence how the firm markets to the customer. If customers expect that a cancellation is likely to prompt a future discount, they can manage long-term utility by strategically buying and canceling.

Example

The dynamic structure of the model is best illustrated through an example of how expectations of future promotional discounts can affect multiple period decisions. I begin with a simple single-period reward function of the form $r(t) = \beta_0 + \beta_P P(t)$, where r(t) is the reward from purchasing at time t, P(t) is the price, and the β terms are response parameters. For the example, I also assume that the reward associated with not buying is equal to zero. In a single-period decision, a customer purchases if $\beta_0 + \beta_P P(t)$ is greater than zero.

To illustrate the dynamics, I assume that there is a two-period decision horizon and that the firm has the ability to offer individual consumers either the full price, P_F, or a discount, P_L. In a myopic decision environment, consumers for whom $\beta_0 + \beta_P P_F$ is greater than zero will purchase in both periods and earn a two-period reward of $2(\beta_0 + \beta_P P_F)$. However, when consumers expect promotions, they may engage in strategies that are designed to maximize cumulative rather than single-period rewards. If consumers expect that deciding not to purchase in the first period may result in being offered a promotional discount in the second period, some consumers for whom $\beta_0 + \beta_P P_F$ is positive may choose not to buy. If a consumer's expected probability of a promotional offer in the second period is Pr(sol), the optimal two-period reward for the customer from not buying is

$$\text{(7)} \qquad V_{No}(1) = 0 + \Pr(\text{sol}) \times \max(\beta_0 + \beta_P P_L, 0)$$
$$+ [1 - \Pr(\text{sol})] \times \max(\beta_0 + \beta_P P_F, 0),$$

where $V_{No}(1)$ is the two-period reward associated with not buying in the first period and then selecting the optimal action in the second period. Given the assumption that $\beta_0 + \beta_P P_F$ is positive, this can be reduced to

$$(8)\quad V_{No}(1) = Pr(sol)(\beta_0 + \beta_P P_L) + [1 - Pr(sol)] \times (\beta_0 + \beta_P P_F).$$

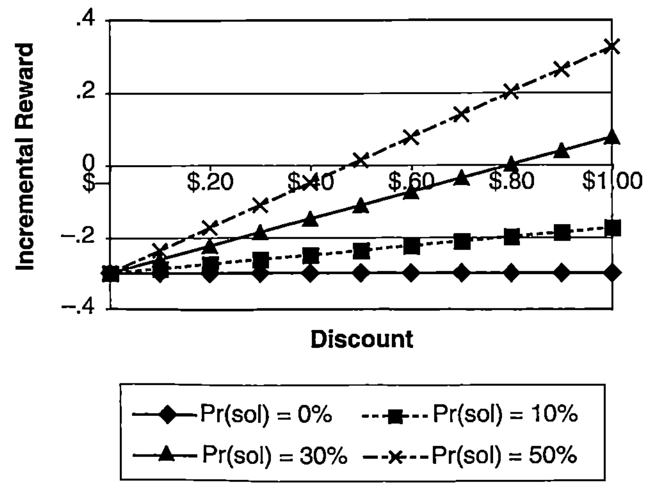
Customers benefit from strategic cancellations when $V_{No}(1)$ exceeds $2(\beta_0 + \beta_P P_F)$. Inspection of the expression for $V_{No}(1)$ reveals that the value of a strategic cancellation is based on the discounted price, P_L, and the consumer's expectation of being offered a promotion, Pr(sol). Figure 1 illustrates the relationship among promotion expectations, discount depth, and strategic cancellations for a two-period decision horizon, where β_0 equals 2.8, β_P equals –1.25, and the full price, P_F, is \$2. In this example, observe that even consumers who gain a positive reward at the full price can benefit by strategically canceling if the discount or likelihood of promotions is sufficiently high. For example, if a consumer expects to receive a solicitation 50% of the time, a discount of \$.50 will motivate a cancellation in the first period. In contrast, if the expected probability is 10%, even a discount of \$1 does not lead to opportunistic behavior.

From the firm's perspective, this type of strategic behavior can reduce CLV and, thus, firm profitability. If the cost of serving a customer is C_T and the cost of solicitation is C_S, the reduction in the two-period profit from a customer who strategically cancels is

$$(9)\quad 2(P_F - C_T) - Pr(S) \times [(P_L - C_T) + C_S] + [1 - Pr(S)] \times Pr(buy|P_F) \times (P_F - C_S),$$

where Pr(S) is the actual probability of a promotional offer, and $Pr(buy|P_F)$ is the probability that the customer purchases at full price in the second period in the absence of a discount.

FIGURE 1
Incremental Two-Period Reward of Strategic Cancellation



Estimation

The estimation of model parameters is in some ways similar to the approach used in static choice models because the likelihood of observed choices is based on a comparison of the utility of the alternatives. The key distinction in dynamic programming models is that the utility of an alternative involves both current utility and expected future benefits. As such, choices are assumed to be the alternatives that maximize utility over the remaining horizon. If the error terms are distributed extreme value i.i.d., the probabilities of observed choices are given in Equations 10 and 11, where v is the deterministic portion of the alternative specific value functions (Rust 1994):

$$(10)\quad Pr[D(t) = 1|S(t)] = \frac{\exp\{v_{D=1}[S(t)]\}}{1 + \exp\{v_{D=1}[S(t)]\}}, \text{ and}$$

$$(11)\quad Pr[D(t) = 0|S(t)] = 1 - Pr[D(t) = 1|S(t)].$$

The likelihood function is the sum of the logarithms of the choice probabilities defined in Equations 10 and 11. Therefore, estimation requires the repeated solution of a dynamic programming model to calculate the value functions. The estimation procedure involves nesting a dynamic programming algorithm within a maximum likelihood routine (see Rust 1994).

Thus far, I have assumed a population with homogeneous preference and expectations. To account for variability in preferences, I use a latent class approach (Kamakura and Russell 1989; Keane and Wolpin 1997; Lewis 2004). This approach assumes that the population consists of M distinct types with separate response functions. The use of a finite-mixture model to account for consumer heterogeneity increases the computational burden because the optimization problem must be solved for each population type.

Results

Table 3 presents estimated coefficients and standard errors for a specification involving the four transaction history classifications in Table 1 and two latent population types. The model also assumes that consumers use a three-month horizon.[2] This specification was selected from versions that varied in the number of transaction history classifications, the number of latent classes, and the extent of forward expectations.[3] The results in Table 3 indicate two distinct customer types. Segment 1 represents only 5.1% of the population, and the parameter estimates suggest a propensity for members to shift back and forth between active and lapsed status. Segment 2 behaves more predictably and exhibits significant duration dependence.

The price sensitivity parameters of Segment 2 customers with fewer than six months as subscribers is –2.63, whereas for customers with more than six months tenure,

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[2] The two-segment model detailed in Table 3 required about four hours for estimation using a 2.4 GHz personal computer.

[3] The model in Table 3 was the preferred specification in terms of the BIC. Removing the expectations structure yielded a log-likelihood of –2181.7 and a BIC score of 7471.66 versus a BIC score of 7433.70 for the full model.

TABLE 3
Estimation Results

		Segment 1		Segment 2	
		Coefficient	Standard Error	Coefficient	Standard Error
Lapsed Six Months or More					
Solicitation	Intercept	2.21*	1.35	–.79*	.49
	Price	–3.95*	1.33	–5.71**	1.74
	Multiple solicitation	–.61	.99	.10	.32
No solicitation	Intercept	.72	1.52	–2.92	3.76
	Price	–2.50*	1.62	–6.07*	3.86
Lapsed Less than Six Months					
Solicitation	Intercept	.48	.86	–.52*	.33
	Price	–.85	1.26	–2.60*	1.08
	Multiple solicitation	–.47	.64	–.63*	.32
No solicitation	Intercept	–.73	2.14	–1.34*	.86
	Price	–3.06	2.39	–3.59*	.93
Tenure Less than Six Months					
Expiration	Intercept	1.40	1.91	2.22**	.64
	Price	–2.38	2.23	–2.63**	.71
	Price increase	–4.75*	2.60	–5.19**	.73
Subscription	Intercept	3.21*	.77	3.97**	.39
	Price	–2.42*	1.01	–3.30**	.42
Tenure Six Months or More					
Expiration	Intercept	.66	1.23	.99	1.34
	Price	–1.61	1.15	–.29	1.35
	Price increase	–9.18*	3.84	–9.16**	1.27
Subscription	Intercept	3.62*	1.56	3.78**	1.03
	Price	–3.06*	1.92	–2.51*	1.05
Expectations	Intercept	–4.15	4.25	–4.13	6.05
	Single solicitation	3.57*	1.99	2.02	1.89
	Multiple solicitation	.26*	.11	.15	.19
	Segment size	–2.93**	.30		
Log-likelihood	–2132.9				

*$p < .10$.
**$p < .01$.

the estimate is –.29. Similarly, price sensitivity increases as time lapsed increases. For customers who were lapsed fewer than six months, the estimated price parameter is –2.60, whereas for those lapsed more than six months, the estimate is –5.71. This pattern is consistent with findings that price sensitivity decreases with customer tenure (Reichheld and Teal 1996). In contrast, the price parameters of Segment 1 do not evolve in the expected manner. For customers with unexpired subscriptions, price sensitivity increases from –2.42 to –3.06 as tenure increases. For unsolicited lapsed customers, the estimated sensitivity decreases from –3.06 for the short-term lapsed to –2.50 for the long-term lapsed.[4] These results suggest that this segment's members tend to buy and cancel opportunistically.

Other pertinent results include the effects of multiple solicitations and price increases. For multiple solicitations, the estimated coefficients are negative in all cases, but the majority of these estimates are not statistically significant. The price-increase terms are negative and significant in all cases. Price increases are especially important for the long-term customers in Segment 2. For this group, there is minimal attrition unless the firm implements a price hike.

In terms of future expectations, the segments are fairly different. Segment 1 tends to exhibit a much stronger link between prior promotional activity and expectations of promotions than does Segment 2. This tendency is consistent with the characterization of Segment 1 as a switching segment. The results for Segment 2 show directional evidence that promotions increase the expectations of future discounts, but the effects are not significant. The expected probabilities of solicitations as a function of previous activity appear in Table 4.

Policy Evaluations

The parameter estimates from the dynamic programming model are structural in nature and therefore are policy invariant (Lucas 1976). As such, the estimates may be used to conduct policy experiments through simulation. Policy experiments may be used to calculate customer value and to compare alternative marketing strategies that vary the depth and frequency of discounts.[5]

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[4] This pattern is supported only by directional evidence because many of the pricing terms for Segment 1 are insignificant.

Table 5 compares the results for the holdout sample with forecasts from several valuation methods. The first row of the table uses average attrition rates, acquisition rates, and prices to forecast revenue. For a population with the same initial characteristics as the holdout sample, this procedure yields a mean customer value of $75.17. The second row uses the average retention and acquisition rates for each level of the transaction history measures (L = time as a lapsed customer, and F = time as an active subscriber). This approach represents a migration model (Dwyer 1989) and predicts a mean value of approximately $72 and a standard deviation of 33.6. The policy experiment uses the parameter estimates from the dynamic programming model and promotional and regular prices similar to the actual policies to simulate the behavior of a population that is identical to the holdout sample in terms of initial transaction history measures. The simulation predicts a mean value of $78.55 and a standard deviation of 53.9.

TABLE 4
Expected Probability of Promotional Solicitations

Previous Solicitations	Segment 1 (%)	Segment 2 (%)
0	1.5	1.6
1	35.9	10.8
2 or more	42.0	12.3

The fourth row describes the actual 36-month revenue value of the holdout sample. The average customer value is approximately $85 with a standard deviation of 68.7. The policy experiment is better able to capture variation because it uses more information related to marketing actions and consumer expectations than the other valuation methods. The benefits of including additional information are also reflected in forecast accuracy. In terms of forecast error, the policy experiment approach performs best with a mean absolute error of 8.7, compared with 16.7 for the migration method and 33.5 for the average rate-based calculations.

I report scenarios involving alternative marketing policies in Table 6.[6] I provide separate valuation estimates for members of each latent population type (Segments 1 and 2). The base policy is a two-price policy involving a large acquisition discount ($2.25 per week) that reverts to the full price after the initial subscription ($2.75). This policy is similar to the pricing observed in the data. The second policy I evaluate is a three-price policy that uses an acquisition price of $2.25 per week and offers a reduced rate of $2.50 when the introductory subscription expires. The full price of $2.75 is then offered at the second renewal. This strategy continues to invest in the relationship at a point (first renewal) when significant attrition tends to occur.

TABLE 5
Customer Valuation Comparisons

Customer Valuation Method	Mean Customer Value ($)	Standard Deviation	Mean Absolute Error
Average retention and acquisition rates	75.17	8.18	33.45
Transaction history specific rates	71.63	33.55	16.73
Simulation based on dynamic programming model	78.55	53.86	8.68
Holdout sample	85.24	68.72	—

TABLE 6
Customer Valuation and Alternative Policies

		Transaction History Classification				
Prices	**Solicitations**	**L ≥ 6 ($)**	**L < 6 ($)**	**F < 6 ($)**	**F ≥ 6 ($)**	**Average ($)**
Segment 1						
$2.25, $2.75	Random 5%	36.11	33.83	39.60	40.70	37.56
$2.25, $2.5, $2.75	Random 5%	42.16	38.33	44.11	44.43	42.26
$2.75	No promotions	32.28	28.86	35.41	35.63	33.04
$2, $2.5	Random 10%	52.63	48.68	54.76	56.16	53.06
Segment 2						
$2.25, $2.75	Random 5%	.02	3.03	28.81	89.25	30.28
$2.25, $2.5, $2.75	Random 5%	1.37	5.00	60.23	89.25	38.96
$2.75	No promotions	.27	2.07	38.77	102.27	32.21
$2.25, $2.5, $2.75	Promote 1X	.69	13.33	52.15	96.01	40.55

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[5] To maintain clarity, I use a 36-month decision horizon, and I do not discount revenues. This horizon is long enough for dynamic factors to be important but short enough to mitigate concerns about the stability of the environment. I exclude costs and nonprice revenues (advertising) from the forecast evaluation calculations but include them in the policy comparisons.

[6] For the customer valuation analyses, I use a cost-to-serve suggested by the firm and assume that solicitations cost $1.

Table 6 reveals significant differences between the segments. The lack or variation in the valuations across the transaction history classifications for Segment 1 indicates that the transaction history measures provide little information. The similar valuations are due to the segment's tendency to move back and forth between active and lapsed states. For Segment 2, the long-term lapsed customers are of very low value, whereas long-term customers contribute approximately $100 in profit. The three-price policy has a strong effect on new customers from Segment 2. For Segment 2, the value of customers who have purchased for fewer than six months increases from less than $30 for the two-price policy to approximately $60. If the population consists of an equal number of consumers in each transaction history classification, a weighted average of the effect of the three-price strategy on both segments predicts an increase in customer value of 27.6% relative to the two-price policy ($39.12 versus 30.66). At the segment level, the three-price policy increases the value of Segment 1 members by 13% and Segment 2 members by 28.7%.

The third policy listed for the segments forgoes promotions and always charges $2.75. For Segment 2, this policy increases the value of long-term lapsed and new customers. The increase in value of the long-term lapsed is due to greater solicitation costs under the base policy, whereas the greater value of new customers is due to the higher price at which customers are acquired. In the two-price policy, new customers are faced with a major price hike at first renewal, whereas in the no-promotion scenario, new customers already pay the full price. Therefore, the no-promotion policy results in greater customer values for new customers but at the cost of acquiring fewer customers. The lower acquisition rate is evidenced by the decrease in the value of lapsed customers from $3 in the base policy to approximately $2 for the no-promotion policy.

The fourth scenario listed for each segment is the best policy identified for that segment. For Segment 1, the suggestion is for lower prices and more frequent promotions. This type of policy is effective because it provides opportunities for Segment 1–type customers to engage in strategic purchasing behavior. A two-price policy that reduces acquisition and regular prices by $.25 and doubles the promotion frequency increases average customer value by approximately 40% to $53.06. For Segment 2, a three-price policy that restricts promotions to one time per customer increases the value of Segment 2 customers by 34% relative to the base two-price policy and by 4% relative to the three-price policy.

Thus far, the discussion has focused on the effects of different pricing and promotional strategies on each population type. I also forecast the relative benefits of applying the same policy across the entire population compared with customizing pricing at the segment level. The application of each segment's best policy results in an average customer value of $41.20. In comparison, the base two-price policy yields a value of $30.66, and the three-price policy results in an estimate of $39.12. The application of the ideal Segment 2 policy across the entire population yields an average customer value of $40.72. These are salient calculations because the benefit of using customized policies based on unobserved types is estimated to provide an improvement of only 1.15% relative to applying the best Segment 2 policy across the population. However, it should be emphasized that the relatively minor benefit of customization based on latent segment type is due to the small size of Segment 1. The recommendation to customize policy only on the basis of observed transaction history measures (and not latent segment membership) is specific to this context and is not a general rule.

Figures 2 and 3 illustrate the relationship between price levels and buying probabilities. Figure 2 shows renewal rates as a function of acquisition price for the total population. Renewal rates are greatly reduced when customers are acquired through steep discounts. Customers acquired with a $.75 weekly discount renew approximately 35% of the time versus a renewal rate of 80% for nonpromotionally acquired customers. Figure 3 shows how discounts influence acquisition rates. For the recently lapsed category, the acquisition rate ranges from 16% for a $.75 discount to 4% for a $.25 discount, and for the long-term lapsed category, the rate ranges from 6% to approximately 1%.

Discussion

In this article, I develop a structural dynamic programming model that can be used as a tool for valuing customer assets

FIGURE 2
Probability of Renewal Versus Acquisition Price

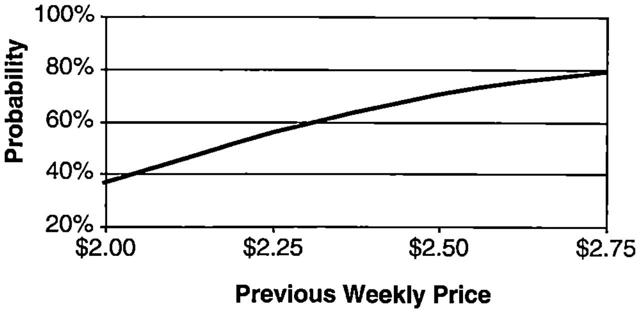
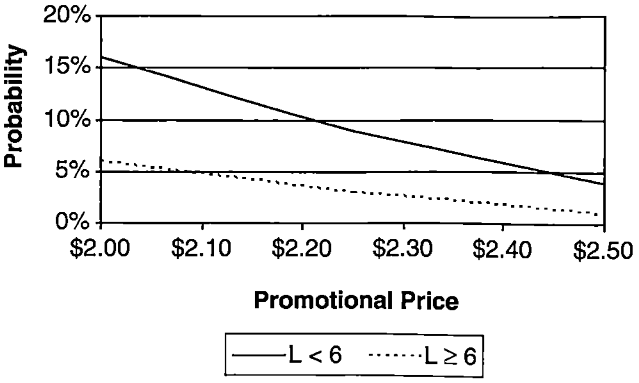


FIGURE 3
Probability of Acquisition



and comparing alternative marketing policies. This approach avoids the implicit assumptions about consumer behavior and firm policies that existing valuation methods use. The policy experiment–based approach evaluates the impact of alternative marketing policies and yields more accurate forecasts of customer value. From a substantive perspective, the results are relevant to audiences that are interested in pricing aspects of CRM. A strategy of gradually increasing prices is found to be more effective than a single steep acquisition discount. In terms of practice, there is support for this type of pricing strategy in the magazine industry (Freedman 1997).

An issue that merits further comment is the challenge and benefit of customizing marketing tactics on the basis of latent segments. Although the estimation results suggest different strategies for each segment, the identification of a customer's unobserved type is a nontrivial issue. Two approaches to determine latent segment membership are common. Observed choices for a given customer may be used to estimate the posterior probabilities of segment membership (Kamakura and Russell 1989), or alternatively, concomitant variables such as demographics may be used to predict segment membership (Gupta and Chintagunta 1994). In practice, a blend of these methods is likely to be used. The sample used for estimation could be segmented by posterior probabilities and then used to create demographic profiles for the latent segments. Demographics, actual or inferred from census data, might then be used to infer the "type" of new prospects, and inferences could be updated as the firm observes the customer over time.

Furthermore, although CRM systems frequently provide the means to customize marketing policies to increasingly fine segments, there is reason to be concerned about potential consumer backlash. Customization of prices based on observable behavior or inferences about customer type is potentially controversial (Feinberg, Krishna, and Zhang 2002; Kahneman, Knetsch, and Thaler 1986). Although basing pricing on transaction history measures is generally accepted in categories such as subscription services (e.g., newspapers) or in industries in which loyalty programs provide quantity discounts, other price discrimination mechanisms may negatively affect customer relationships. For example, Coca-Cola earned negative publicity for testing vending machines that varied prices on the basis of the weather (Egan 2001), and Amazon.com came under fire in 2000 when consumers learned they were paying different prices for the same DVDs (Hamilton 2001). Because of adverse publicity, Coca-Cola chose not to implement the temperature-based pricing technology, and Amazon.com used refunds and apologies to placate consumers who were charged higher prices in the dynamic pricing experiment.

In the context of this article, although the firm can benefit by using aggressive promotions when managing the switching segment of the population, the estimated benefit from using latent-segment-specific pricing strategies is only a 1.15% gain in customer value. This increase must be weighed against concerns about negative publicity and consumer ill will. The relative benefit of using customized or one-to-one marketing techniques versus the possible adverse effect on customer relationships or consumer trust (Morgan and Hunt 1994) is a topic that merits additional research.

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Jacquelyn S. Thomas & Ursula Y. Sullivan

Managing Marketing Communications with Multichannel Customers

This article presents a marketing communications process that uses customer relationship management ideas for multichannel retailers. The authors describe and then demonstrate the process with enterprise-level data from a major U.S. retailer with multiple channels. On the basis of the results, the authors develop an initial marketing communications strategy for the retailer.

Over the past decade, customer relationship management (CRM) has proved critical in helping firms make more money by enabling them to identify the best customers and then satisfy their needs so that they remain loyal to the firm. More recently, CRM has grown increasingly complex with the proliferation of retailers expanding their channels of distribution (Cleary 2000). This has led to the need for enterprise-level data, which are the aggregation of data gathered from all firm interactions with their customers across all channels. Given this data-rich, dynamic environment, how can a firm identify the customers who will migrate among its multiple channels and predict their migration patterns? More important, how does the firm communicate with these customers to influence their channel choices and, ultimately, their value? This research focuses on answering these questions.

Thus, this article has two general objectives. First, we illuminate a process by which multichannel retailers can leverage enterprise-level data to understand and predict their customers' channel choices over time. Second, we demonstrate how the information gained from this process can be used to develop strategies for targeting and communicating with customers in a multichannel environment. The benefits achieved from the application of this process include increased efficiency in marketing expenditures and enhanced customer value. In the next section, we outline the general process for managing marketing communications (MARCOM) with multichannel retail customers. Subsequently, we demonstrate the application of the process using an enterprise database of a multichannel retailer. We conclude by noting the limitations of the study and ideas for further research in this area.

The Multichannel MARCOM Process

The process of managing MARCOM in a multichannel environment begins with the identification of relevant factors that differentiate among customers who use different channels. It continues with the development of a communication strategy for existing customers, and it ends with the prediction of the right communications strategy for prospects and new customers.

Step 1: Estimate a Segment-Level Channel Choice Model

The critical aspect of this step of the process is not *choosing* the model (e.g., multinomial logit or probit) as much as it is *specifying* the model. It is important that the variables in the model are factors that (1) drive channel choice, (2) help classify prospects and customers into segments, and (3) measure the efficiency of the MARCOM expenditures and activities. Channel choice research has identified customers' price expectations (e.g., Brynjolfsson and Smith 2000), the product group to be purchased (Young 2001), and convenience (Forster 2004) as factors that may lead to a specific choice among channels or stores (Fox, Montgomery, and Lodish 2004). Balasubramanian, Raghunathan, and Mahajan (2005) assert that the goals (e.g., economic, self-affirmation, socialization) a consumer tries to achieve during his or her shopping experience affect channel choices.

Although descriptors of the actual purchase are relevant, it is also important to include independent measures that can be known before a purchase so that they can be used to classify prospects into segments. The distance that a customer lives from a store is an example. Other examples of factors that may drive channel choice include switching costs and risk aversion (Dholakia, Zhao, and Dholakia 2005). If competitive data are available, both of these factors can be assessed before the customer's first purchase with the focal firm.

Another factor to consider in the channel choice decision is the extent to which prior channel choices influence current channel choices. In general, marketers have shown

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that prior experiences affect current choices (e.g., Boulding, Kalra, and Staelin 1999; Thomas, Blattberg, and Fox 2004). In a channels context, Shankar, Rangaswamy, and Pusateri (2001) show that a prior positive experience with a brand in a physical store can decrease price sensitivity online. Furthermore, Dholakia, Zhao, and Dholakia (2005) assert that prior channel choices affect subsequent channel choices when customers make repeat purchases. Thus, knowledge of prior purchase channels may help explain future channel choices and develop a MARCOM strategy.

In terms of MARCOM, variables that measure the number, nature, or dollar amount of communication expenditures are also important to include in the channel choice model. For example, a study of migration between the catalog and the Internet channels finds that the number of marketing communications largely predicts the buying behavior of an Internet-oriented segment (Ansari, Mela, and Neslin 2005). Other research asserts that individual- or segment-level media expenditures are essential in the development of a MARCOM strategy (Tellis 2003, p. 45).

Although thoughtful identification of the critical factors that drive channel choice is important, it is also vital to recognize that, similar to attitudes (see Eagly and Chaiken 1993), the consumer's channel choice probabilities may change over time. This change over time is referred to as nonstationarity. In empirical applications, the presence or absence of nonstationarity in choice probabilities is determined by a statistical test (Anderson and Goodman 1957; Montgomery 1969; Styan and Smith 1964). This phenomenon can be captured simply by including a variable in the choice model that indicates time or purchase occasion number.

Step 2: Assign Each Existing Customer to a Segment and Profile the Segments

After the factors associated with channel choice have been examined and the choice model has been estimated, a statistical equation can be used to assign customers to a specific segment. A profile of each segment should then be created to describe the demographics and historical behavior of the segments, including differences and similarities. Doing so not only results in a greater understanding of the kinds of customers who frequent the retailer but also helps firms target and assign new customers to current segments (as can be observed in Step 5).

Step 3: Predict the Probability of Channel Choice over Time

The purpose of this step is to anticipate the customer's channel choices in the future, thereby becoming more efficient with MARCOM activities in a multichannel environment. Various statistical models can be used for prediction. In this process, we leverage the results from Step 1 to develop a Markov chain. A Markov chain details the probability of a customer sequentially choosing to buy from different channels over time. A firm can then determine which channels a customer is most likely to buy from in the future. Using the knowledge of what drives channel choice (i.e., the results from Step 1), a firm can then attempt to leverage MARCOM to encourage channel choices that enhance customer value.

Step 4: Develop a Segment-Specific Communications Strategy

With this step, a firm can now begin to develop a MARCOM strategy for its existing customers. To develop the strategy, the firm should consider (1) the customer types that generate the most value to the firm (e.g., catalog plus Internet customers versus bricks-and-mortar store plus Internet customers), (2) a customer's intrinsic channel choice preferences and tendencies given the current MARCOM tactics, (3) the degree to which customers respond to MARCOM and the nature of that response, and (4) the costs associated with different MARCOM activities.

Step 5: Classify First-Time Customers into Existing Segments

The objective of Step 5 is to use early information (e.g., demographics, channel of first purchase, revenues from first purchase) from prospects and first-time customers to classify them into the existing segments they most closely resemble. There are various classification and segmentation methods (e.g., discriminant analysis, chi-square automatic interaction detection [CHAID], classification and regression tree [CART], cluster analysis) that can be used in this step. Given the classification, the firm can then tailor communications that will influence purchase behavior similar to other customers in the same segment. The more elaborate the segment profiles (from Step 2) and the more detailed the data on prospects and new customers, the easier this step becomes.

Step 6: Update Segment Affiliation

Finally, as current and new customer interaction data become available, the data can then be applied to repeat the prior steps and update the segment assignments and their profiles. In particular, the Markov chain may help update the segment memberships. Note that the six steps we outline for the enhancement of MARCOM efficiency are closely aligned with the four critical actions (i.e., database creation, market segmentation, forecasting customer purchase behavior, and resource allocation) that Berger and colleagues (2002) assert are necessary for the assessment of how marketing actions affect customer value.

Application of the MARCOM Process

Customer Database

To demonstrate the application of the multichannel communications process, we use an enterprise customer database from a major U.S. retailer. This database includes sales from the retailer's three channels: physical retail stores, catalogs, and the Internet. The data were captured using the retailer's proprietary system, which first issues a unique number to a customer and then tracks that customer each time he or she purchases an item from any of the retailer's three channels. Of the more than 4100 customers tracked for this analysis, bricks-and-mortar store-only customers constituted approximately 63% of the total, catalog-only customers constituted 11.9%, and Internet-only customers constituted 12.4%. Dual-channel customers constituted 11.9% of the orders, and three-channel users constituted approximately 1%. Descriptive statistics of customers' purchase behaviors and highlights of the differences between customers appear in Table 1. We determined all of the relative comparisons we note in the bottom portion of Table 1 using a multivariate analysis of variance and planned contrasts for which the critical significance level was at least .05. Note that information from Table 1 is helpful when trying to derive inferences about the relationship between channel usage and customer value. Thus, we also use this information in future steps.

The data cover one year's worth of purchases from only first-time buyers.[1] Although this one-year time horizon is not ideal for lifetime value assessments, which are common in CRM, this application shows that firms with even a limited enterprise database can begin to assess channel migration and develop communication strategies. As more data become available, a firm can then repeat the process and assess longer-term customer profitability.

Although data integration across channels is a significant challenge for many firms, a failure to do so could distort the firm's view of its customers (Aberdeen Group 2004). In these data, we find that if a channel were to function in a silo, it would fail to capture between 50% and 65% of a multichannel customer's total annual revenues. The magnitude of this distortion will vary by firm, but in these data, we find that it is similar for the store and catalog channels and is the greatest for the Internet channel. Thus, the necessary characteristics of the data are that (1) they are a longitudinal record, tracking all of a customer's purchase occasions, and (2) they contain elements of the purchase environments (e.g., promotions, pricing) across all three channels. For each purchase occasion, this firm's database tracks the channel from which the customer purchases, the products purchased and their categories, and the prices paid. A notable feature of this retailer is that all products are offered in all three channels, and pricing and promotions are uniform across the channels.

Step 1: Estimate a Segment-Level Channel Choice Model

We use a multinomial logit model to estimate channel choice at a given time. A list of the independent variables and their operationalizations appear in Table 2. There are a few things to note with respect to our variable selection. First, we include a quadratic term for MARCOM dollars to explore nonlinearities in the relationship between communication expenditures and channel choice. We based this decision on previous research that has identified a decreasing-returns relationship between MARCOM expenditures and customer acquisition, retention, and long-term profitability of customers (Reinartz, Thomas, and Kumar 2005). Second, we include only the most recent prior purchase as a variable in the model. We based this decision on the statistical tests that Styan and Smith (1964) outline, from which we determined that the channel choice at time (t – 1) affects the channel choice at time t.[2] Third, we include the purchase occasion variable. Using a test that Anderson and Goodman (1957) outline, we conclude that channel choice probabilities change over time (i.e., they are nonstationary).[3]

To capture unobserved heterogeneity in the choice probabilities, we estimated the model using a latent class segmentation approach as Kamakura and Russell (1989) describe. The results from estimating the Logit model appear in Table 3. Note that the latent class procedure yielded two distinct segments (Akaike information criterion for Segments 1, 2, and 3 were 1.115, .9326, and .9330, respectively). For comparing the relative impact of the factors related to channel choice, Table 3 includes the elasticities of the statistically significant variables. These elasticities aid us in Step 4 as we develop the MARCOM strategy.

Step 2: Assign Each Existing Customer to a Segment and Profile the Segments

Consistent with the latent class estimation in Step 1, we assign customers to one of the two segments on the basis of their prior choice histories. As Kamakura and Russell (1989, Eqs. 7 and 8) describe, we first assume that a customer belongs to a specific segment. Given that assumption, we compute the likelihood of each customer's channel choice history. The equation to compute this is expressed here as follows:

$$L(H_k|i) = \prod_t P_j(u_{ji}, \beta_{ji}, X_{kt}), \tag{1}$$

where

$L(H_k|i)$ = the likelihood that customer k has channel choice history H given that he or she is in segment i,

---

[1] We limit our analysis to customers who first began a relationship with the firm during the observation horizon because customers who began before this time may have histories preceding the observation window that affect their current behavior and this analysis.

[2] For a zero- versus first-order test, we need a customer to have at least two purchase occasions. However, because we do not assume stationarity at this point, for those who had a longer history, we continued to test the zero-order hypothesis at different points in their life cycles. Thus, we computed chi-square statistics at several repeat purchase occasions. The chi-square values for the first, second, third, fourth, and fifth repeat purchases were 137.33, 32.92, 26.17, 28.45, and 17.19, respectively. Assuming that p = .995, the critical chi-square value with four degrees of freedom is 14.86; therefore, we reject the null hypothesis that states that the process is a zero-order model. We conducted a second-order test, but we could not reject the null hypothesis that it was a first-order model.

[3] Given our data, we let T = 6; we applied a test of stationarity to our data and found a chi-square value of 252.85. If p = .995, the critical chi-square value at 30 degrees of freedom was 50.67. From this, we conclude that we can reject the null hypothesis and that in this application, the channel choice process is nonstationary.

TABLE 1
Data Description and Comparison

Channel Usage	Sample Size	Percentage of Population	Means (Standard Errors)							
			Number of Unique Purchase Occasions		Number of Categories Purchased in		Total Dollars Spent over Relationship ($)		Number of Items Purchased	
Brick only (B)	2620	62.95	3.66	(2.44)	3.31	(2.19)	571.21	(2,022.98)	27.68	(44.66)
Catalog only (C)	491	11.80	2.22	(.51)	1.22	(.55)	1,561.11	(5,176.72)	26.94	(61.35)
Internet only (I)	516	12.40	2.37	(1.31)	1.73	(1.19)	639.47	(622.36)	16.04	(40.74)
Brick and catalog (B + C)	252	6.05	3.98	(2.27)	3.12	(2.29)	2,204.65	(4,492.55)	50.12	(66.41)
Brick and Internet (B + I)	203	4.88	4.14	(2.25)	3.89	(2.39)	720.13	(202.61)	37.24	(82.82)
Catalog and Internet (C + I)	42	1.01	4.06	(1.58)	2.60	(1.58)	2,223.09	(6,702.44)	60.95	(68.87)
Brick, catalog, and Internet (B + C + I)	38	.91	5.71	(3.66)	3.88	(2.55)	2,379.97	(6,585.03)	72.48	(116.40)
Total	4162									
Multiple Channel User										
Yes	535	12.85	4.15	(1.77)	3.40	(2.13)	1,612.93	(6,256.16)	27.91	(41.47)
No	3627	87.15	3.05	(1.97)	3.01	(2.06)	710.79	(3,552.74)	38.39	(75.05)
Total	4162									

Summary of Planned Contrasts

	Number of Unique Purchase Occasions	Number of Categories Purchased in	Total Dollars Spent over Relationship	Number of Items Purchased
Single-channel buyer	B > C = I	B > I > C	C > B = I	B = C > I
Two-channel buyer	B + C = B + I =C + I	B + I > B + C > C + I	B + C > B + I B + C = C + I B + I = C + I	C + I > B + C > B + I
Three-channel buyer versus two-channel buyer	B + C + I > any 2	B + C + I > B + C B + C + I = B + I B + C + I > C + I	B + C + I = B + C B + C + I > B + I B + C + I = C + I	B + C + I > B + C B + C + I > B + I B + C + I = C + I

TABLE 2
Choice Model Variables

Variable Name	Operationalization
Price	Dollar amount paid for the product
Product category	Ten dummy variables that represent the 11 basic product categories into which all of the retailer's products are grouped
Distance	Number of miles the customer lives from the closest store
MARCOM dollars	Time-varying measure that equals the dollar amount of the direct marketing communications that were sent to each customer after his or her prior purchase and the current purchase at time t
(MARCOM dollars)^2	The square of the MARCOM dollars
Number of MARCOM	Time-varying measure that equals the number of direct communications the customer receives after his or her last purchase and before the current purchase at time t
Prior channel	Two dummy variables that indicate the prior channel from which the customer made a purchase
Purchase occasion	Time-varying measure that equals the current purchase occasion number of the customer

$Pj(u_i, \beta_i, X_{kt})$ = the probability that customer k chose channel j at time t given that he or she is in segment i,
u_{ji} = the preference parameter for channel j given that the customer is in segment i,
β_{ji} = the coefficient vector for channel choice j given that a customer is in segment i, and
X_{kt} = the vector of covariates for customer k at time t.

In the case of these data, we derive the probability in Equation 1 using the parameter estimates from Step 1 of this MARCOM process. In Step 1, we also estimated a parameter that leads to the determination of the size of each latent segment. Specifically, we found that 27% of the customers likely belong to Segment 1 and that 73% likely belong to Segment 2. Using the segment size information, for each customer, we compute the probability that he or she belongs to a particular segment. Borrowing from the work of Kamakura and Russell (1989, Eq. 8), we describe this posterior probability of segment membership in Equation 2:

$$P(k \in i|H_k) = \frac{L(H_k|i)f_i}{\sum_{i'} L(H_k|i')f_{i'}}, \tag{2}$$

where

$P(k \in i|H_k)$ = the probability that customer k is in segment i given choice history H,
f_i = the probability of being in segment i, and
i' = the identifier of a latent segment.

On the basis of the result of Equation 2, we assign a customer to the segment for which he or she has the highest probability of membership.

After all customers have been assigned to a segment, we profile the segments on the basis of the key variables of prior purchase behavior, demographics, and the nature of the communications between the firm and the customers. Table 4 shows the profile for these data. Note that the profile may contain variables that were not included as independent variables in the channel choice model. We use the information in Table 4 to help classify prospects in Step 5.

Step 3: Predict the Probability of Channel Choice over Time

The goal of this step is to develop a series of Markov switching matrices that reflect the probability of choosing a specific channel in the next period, given that the current channel choice is known. Using the parameter estimates from Step 1 that appear in Table 3, for each segment, we predict the probability of choice at time t at the mean value for the continuous variables (except the purchase occasion variable) and the modal value for the categorical variables (except the prior channel variable). Consistent with our definition, we set the purchase occasion variable equal to two for the first repeat purchase occasion. For subsequent repeat purchase occasions, we increase the variable by one accordingly. The parameter that we use in the prediction for the prior channel choice depends on which row of the matrix we are predicting. For these data, the channel choices for four periods into the future appear in Table 5. We observe that there are two distinct segments in terms of channel use: Segment 1 frequents the catalog and/or Internet, and Segment 2 is channel loyal and frequents the bricks-and-mortar store. Given the degree of loyalty, it is not surprising that the majority of Segment 2 customers made their first purchase from this same channel. This pattern of channel loyalty is consistent with Dholakia, Zhao, and Dholakia's (2005) findings.

Step 4: Develop a Segment-Specific Communications Strategy

Developing a segmented MARCOM strategy begins with some basic questions. Which customer types generate the most value to the firm? From Table 1, we confirm that multichannel buyers generate more revenue for the firm, purchase more items, purchase in more categories, and purchase more frequently than do single-channel buyers. More specifically, we learn that multichannel customers who use catalogs tend to generate more revenue than multichannel customers who do not use catalogs. We even find that a dual-channel customer is equally as valuable as a three-channel customer in terms of revenue, as long as the dual-channel customer buys from the catalog. Although this information does not imply a causal relationship between channel choice and purchase behavior, it provides a guide

TABLE 3
Logit Model Estimates

	Segment 1				Segment 2			
	Brick Versus Internet[a]		Catalog Versus Internet[a]		Brick Versus Internet[a]		Catalog Versus Internet[a]	
	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]
Intercept	–.865 (.086)	**	.228 (.083)	*	–6.014 (.110)	**	–7.271 (.130)	**
Purchase occasion	.100 (.008)	1.451**	–.505 (.012)	–.201**	1.918 (.032)	.000**	2.034 (.033)	.434**
Price	–.018 (.001)	–.027**	–.017 (.001)	–.018**	.077 (.003)	.000**	.052 (.003)	–.189**
Communication dollars	–.0128 (.000)	–.219**	–.0470 (.000)	.081**	1.500 (.004)	23.865*	–9.976 (.007)	–6.865**
(Communication dollars)^2	–.0138 (.000)	**	–.0450 (.000)	**	–.0445 (.000)	**	.177 (.000)	**
Number of communications	.479 (.030)	2.750**	–.048 (.032)	–.039	.723 (.035)	.000**	.786 (.055)	.343**
Distance from closest brick	–.107 (.001)	–12.950**	–.0001 (.000)	.007	–.003 (.000)	.000**	–.091 (.016)	–2.510**
Prior channel is brick	5.857 (.082)	2.662**	3.736 (.075)	.541**	2.275 (.059)	.000**	–2.431 (.110)	–4.706**
Prior channel is catalog	5.857 (.083)	2.662**	3.736 (.075)	.541**	.403 (.089)	–.002**	3.243 (.095)	2.839**

TABLE 3
Continued

	Segment 1				Segment 2			
	Brick Versus Internet[a]		Catalog Versus Internet[a]		Brick Versus Internet[a]		Catalog Versus Internet[a]	
	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]	Coefficient[b] (Standard Error)	Elasticity[c]
Product Categories								
Category 2	–.875 (.066)	.585**	–1.709 (.060)	–.249**	1.660 (.057)	.000**	.804 (.099)	–.856**
Category 3	–1.404 (.059)	–.382**	–1.195 (.056)	–.173**	.599 (.036)	.000**	–.408 (.091)	–1.007**
Category 4	–1.049 (.069)	–.637**	–.482 (.064)	–.070**	2.295 (.079)	.000**	3.062 (.116)	.767**
Category 5	–1.288 (.098)	.584**	–2.191 (.102)	–.319**	28.304 (74.200)		26.204 (67.420)	
Category 6	–.935 (.051)	.000**	–1.093 (.048)	–.159**	2.303 (.183)	.000**	7.742 .204	5.439**
Category 7	–.935 (.051)	.000**	–1.093 (.048)	–.159**	20.099 (125.249)		16.447 (25.250)	
Category 8	–.934 (.051)	–.001**	–1.092 (.048)	–.159**	1.064 (.069)	.000**	–1.049 (.141)	–2.113**
Category 9	–.933 (.052)	.000**	–1.091 (.048)	–.159**	1.162 (.085)	.000**	.708 (.187)	–.454*
Category 10	–.935 (.053)	.000**	–1.093 (.049)	–.159**	11.271 (10.225)		–81.580 (81.655)	
Category 11	–.935 (.051)	–.001**	–1.093 (.048)	–.159**	.172 (.059)	.000*	–.912 (.187)	–1.084**
Segment Size	.27				.73			

*$p < .05$.
**$p < .0001$.
[a] To determine the coefficient for choosing the brick store versus the catalog, we subtracted the coefficient for choosing the catalog versus the Internet from the coefficient for brick versus the Internet.
[b] A positive coefficient means that a customer is more likely to choose channel j than the base channel. The base channel is the Internet in this case.
[c] We computed elasticities at the mean value of the continuous variables and the modal value of the categorical variables.

TABLE 4
Segment Profiles

	Segment 1		Segment 2	
	Mean	Standard Deviation	Mean	Standard Deviation
Relationship duration (days)	138.39	166.48	137.70	152.48
Number of unique purchase occasions	2.73	1.22	3.73	2.40
Total revenues generated throughout entire relationship	850.29	434.80	727.05	3825.85
Total revenues from first purchase	106.06	236.72	90.36	161.97
Total number of items purchased throughout entire relationship	106.40	116.96	118.15	148.87
Distance from closest bricks-and-mortar store (miles)	121.62	158.78	28.66	21.21
Number of channel switches	.30	.68	.19	.68
Days elapsed between channel switches	118.84	144.49	103.51	115.62
Total amount of direct mail communication dollars	2.60	1.53	2.64	1.45
Total number of direct mail communications	5.29	5.22	5.43	5.04
Percentage of Customers with Channel of First Purchase				
Bricks-and-mortar	34.53		75.05	
Catalog	46.64		7.94	
Internet	18.83		17.01	
Percentage of Customer Purchases by Category				
Category 1	47.91		49.76	
Category 2	8.84		9.45	
Category 3	12.49		12.42	
Category 4	8.65		6.81	
Category 5	2.10		2.55	
Category 6	3.83		1.10	
Category 7	2.26		2.42	
Category 8	4.29		4.46	
Category 9	2.01		2.93	
Category 10	4.61		5.85	
Category 11	3.00		2.26	
Percentage of Customers Making up to N Repeat Purchases				
1	58.12		21.33	
2	26.22		57.44	
3	7.79		13.21	
4	4.44		2.90	
5	1.89		2.77	
6	.51		.85	
7	.36		1.01	
8	.29		.35	
9	.36		.13	
10+	.00		.00	
Percentage of Customers in Segment	27		73	

that we can use to develop a communication strategy for influencing channel choice.

What are the customer's intrinsic channel preferences and tendencies? The answer to this question comes primarily from the Markov matrices we developed in Step 3 (see Table 5). These matrices reveal that Segment 1 is primarily a catalog segment, as long as the prior purchase was not from the Internet. If the customer's prior channel was the bricks-and-mortar store, the probability is high that his or her first and second repeat purchases will be from the catalog. If the customer's prior purchase was over the Internet, there is some migration toward the catalog in the early stages of the life cycle, but this diminishes as the repeat purchase occasions increase. In general, Segment 1 customers could be labeled as those who migrate toward remote channels.

In contrast, Segment 2 customers will most likely stay in the bricks-and-mortar channel or switch to it. Over time, the data predict that Segment 2 customers will not choose to buy from the Internet. Given the infrequent switching that occurs in this segment (see the profile in Table 4), it could also be concluded from the trajectory of the matrices that a small group of customers in Segment 2 who repeat buy from the catalog will likely be those whose first purchase was from this same channel.

Thus, consistent with the segment profiles, these forecasts indicate that there is a significant amount of channel stickiness for buying in both segments. This is an important

TABLE 5
Forecasted Channel Switching Probabilities

	Transition Matrices					
	Segment 1: Next Period Channel			Segment 2: Next Period Channel		
	Bricks-and-Mortar	Catalog	Internet	Bricks-and-Mortar	Catalog	Internet
First Repeat: Current Channel						
Bricks-and-mortar	000	886	114	992	001	007
Catalog	000	886	114	737	231	032
Internet	000	198	802	888	049	063
Second Repeat: Current Channel						
Bricks-and-mortar	000	828	171	1 000	000	000
Catalog	000	828	171	741	259	000
Internet	000	132	868	941	059	010
Third Repeat: Current Channel						
Bricks-and-mortar	001	751	248	999	001	000
Catalog	001	751	248	721	279	001
Internet	000	085	915	942	056	001
Fourth Repeat: Current Channel						
Bricks-and-mortar	001	655	344	999	001	000
Catalog	001	655	344	700	300	000
Internet	000	054	946	940	060	000

finding for several reasons First, it suggests that for these data, the channel of first purchase has a high probability of being the channel choice for subsequent purchases Second, this finding leads to the next set of questions

To what extent do customers respond to MARCOM, and what is the nature of their response? On the basis of the elasticities in Table 3, we conclude that the number of communications is a key factor that is associated with the choice of the bricks-and-mortar store over the Internet but not for the choice between the catalog and the Internet in Segment 1 (see Table 3) The prior channel also seems to play a significant role in subsequent channel choices for Segment 1 Specifically, the lack of prior experience on the Internet is related to the decision not to choose the Internet for subsequent purchases For Segment 2, the elasticities (see Table 3) indicate that the MARCOM dollar expenditures appear to drive channel choice the most Increasing the number of communications in Segment 2 is associated with the choice of the Internet over the store or the catalog

Given the significance of both the linear and the quadratic terms in both segments, we show the effect of MARCOM dollar expenditures graphically in Figure 1 This figure shows the change in the log odds of channel choice with respect to MARCOM dollar expenditures To compute the log-odds ratio, we assume that the customer is making his or her first repeat purchase and that all other continuous variables are fixed at their means and the categorical variables are fixed at their modes[4] For Segment 1, we find that the log-odds ratio is negative and decreasing for the bricks-and-mortar store and positive and decreasing for the catalog channel This means that an increase in MARCOM spending decreases the chance of the customer's choosing the bricks-and-mortar channel over the Internet In addition, overall, MARCOM expenditures enhance the chances of the customer's choosing the catalog over the Internet, but this probability decreases as MARCOM expenditures increase Thus, within the range of these data, we conclude that, in general, increasing MARCOM expenditures directed at the average Segment 1 customer motivates him or her to make the first repeat purchase from the catalog

For Segment 2, we find that the log-odds ratio is positive and increasing for the bricks-and-mortar store and negative and decreasing for the catalog channel[5] This means that an increase in MARCOM spending increases the chance of choosing the bricks-and-mortar channel over the Internet and decreases the chance of choosing the catalog over the Internet On the basis of the magnitude and sign of the log-odds ratios, we conclude that higher levels of communication spending directed toward Segment 2 primarily drives the average Segment 2 customer to make his or her first repeat purchase in the bricks-and-mortar store

Synthesizing all of this information leads to an initial strategy for communicating with customers The objective of this strategy is to encourage channel choice behavior that is consistent with the firm's highest-value multichannel customers Because we are interested in driving net marketing contribution, we ignore the fixed costs that are associated with operating the channels when developing this strategy Given this objective and the responses to the critical questions, we conclude that though Segment 1 customers are

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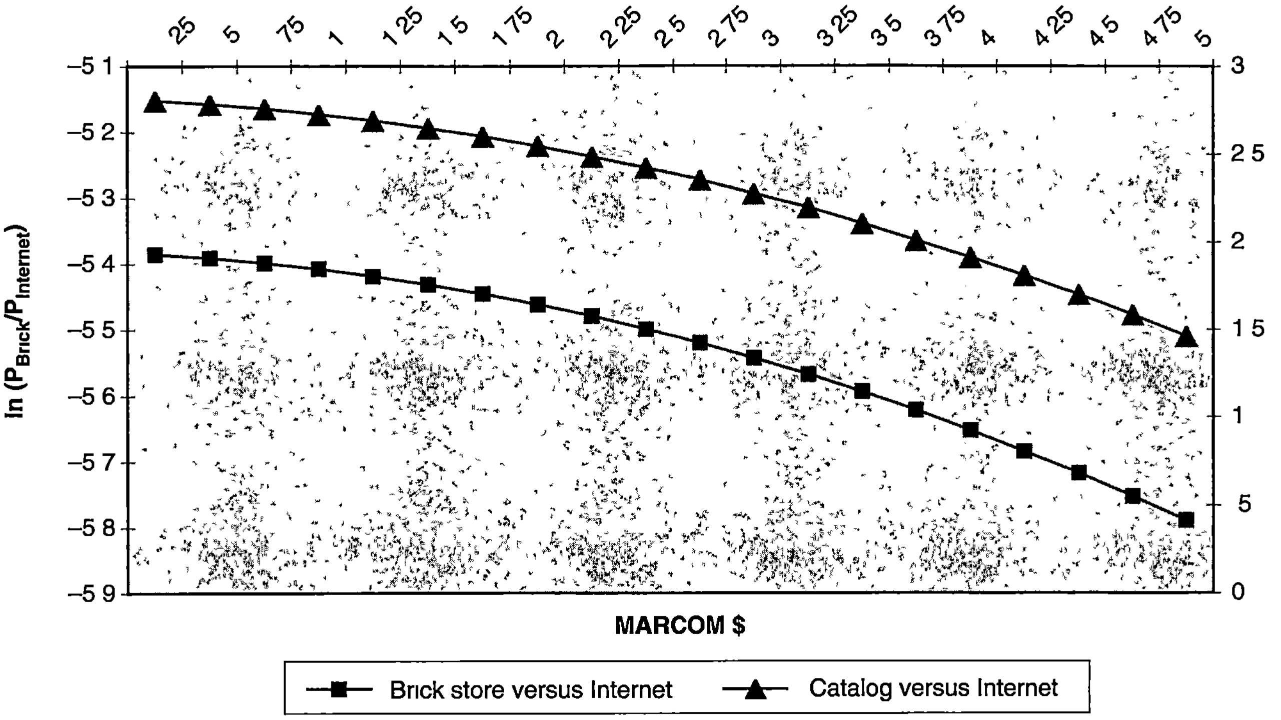
[4] Given that in the data the average number of unique purchases is between two and three, we determined that it was best to assume that the customer was making his or her first repeat purchase

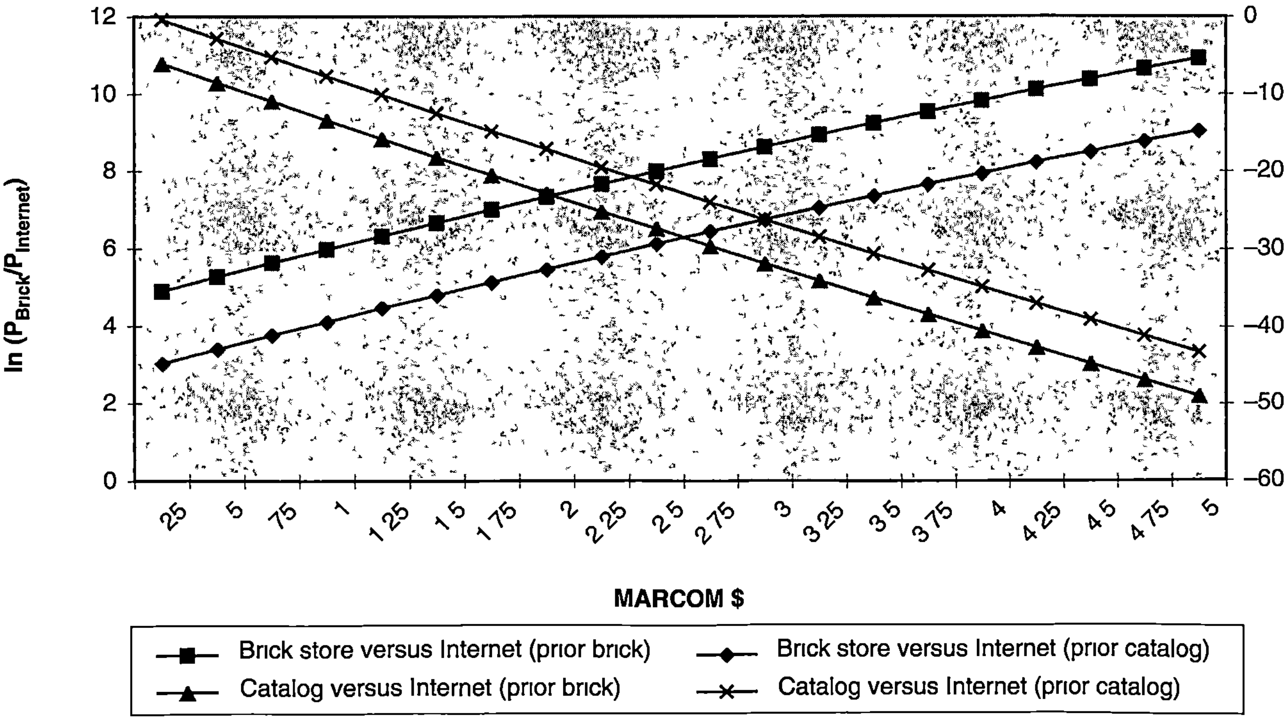
[5] Although we do not show this in Figure 1, we also used the parameter estimates to assess the choice between the physical bricks-and-mortar store and the catalog

FIGURE 1
Effect of MARCOM Expenditures on Channel Choice

A: Segment 1



B: Segment 2



Notes The meaning of the vertical y-axes should be conceptualized as the odds of choosing the specific channel versus the Internet more likely to switch channels than Segment 2 customers, MARCOM plays a more limited role in this decision The prior purchase channel is a vital if not better predictor of subsequent channel choice

Many Segment 1 customers (46%) made their first purchase through the catalog For customers in this portion of the segment, the retailer should attempt to maintain its strong affiliation with the catalog channel and encourage customers to have a multichannel relationship that likely would include the Internet The rationale for this is that historical data indicate that this type of multichannel customer is desirable because of his or her tendency to be one of the highest dual-channel revenue generators, have a high purchase volume, and purchase at least as often as any other dual-channel buyer (see Table 1) Given that the number of communications does not have a significant effect on the choice between the catalog and the Internet channels, the firm should increase the MARCOM expenditure but direct the increase toward enhancing the quality of the communications, not the number of communications An opportunity for improving the quality in a way that motivates the use of the Internet would be to feature products that are not in the base product category (i e , Category 1, see Table 3)

For the 54% of Segment 1 who began a relationship through a channel other than the catalog, the goal is to drive these customers toward the catalog The odds are against the choice of the bricks-and-mortar store over the catalog, but they improve slightly as the MARCOM dollars increase from $ 25 to $5 00 Similarly, the odds are against the choice of the Internet over the catalog, but they improve as MARCOM expenditures increase from $ 25 to $5 00 In addition, we know that increasing the number of communications drives this group of customers away from the catalog (see Table 3) On the basis of all this information, we conclude that the best way to drive these customers toward the catalog is to limit the amount of MARCOM spending and the number of contacts

Although both segments exhibit channel loyalty, Segment 2 customers exhibit even higher levels of channel loyalty This makes the channel of first purchase an even more important predictor of future choices This also suggests that encouraging a person in Segment 2 to use all three channels is extremely difficult Given that Segment 2 is channel loyal and that catalog-only customers generate the most revenue of all the single-channel customers (see Table 1), with limited MARCOM resources, it is better to focus a channel migration initiative on customers in Segment 2 whose first purchase was not through a catalog Using the data in Table 1, we determine that the most desirable migration profiles for this subgroup are for first-time bricks-and-mortar store customers to become store and catalog customers and for first-time Internet customers to migrate to either of the other two channels In addition, the estimates and elasticities from Table 3 suggest that for this subgroup, both the amount and the number of MARCOM expenditures are instrumental in achieving these migration objectives

In Table 6, we summarize the specific MARCOM goals, a tactical plan, and the expected outcome of that plan for both segments We derived the financial outcomes that appear in Table 6 using a segment-specific comparison of the revenue generation from a single-channel customer becoming a dual-channel customer (e g , a catalog-only customer becoming a catalog and Internet customer in Segment 1) On the basis of these expected financial outcomes, we conclude that the potential payout may be greater if the firm focuses its incremental MARCOM resources on customers whose first channel was not the catalog

Although the financial projections of the initial MARCOM strategy appear promising, it is critical that the firm

TABLE 6
Initial MARCOM Strategy

	Segment 1	Segment 2
First Purchase Channel Is Catalog	•Migration objective Maintain catalog affiliation, and migrate to the Internet •Tactical plan Focus on increasing the MARCOM dollar expenditures, and leverage this increase to enhance the quality of MARCOM •Expected plan outcome Customer profile C →C + I Change in revenue 118%	•Migration objective Given limited resources, accept these customers as single-channel customers •Tactical plan Maintain status quo MARCOM •Expected plan outcome Customer profiles C →C Change in revenue 0%
First Purchase Channel Is Not Catalog	•Migration objective Encourage migration to catalog channel •Tactical plan Limit both the amount and the number of expenditures, and leverage existing expenditures to enhance the quality of existing MARCOM •Expected plan outcome Customer profiles B →B + C, or I →I + C Change in revenue 138%–199%	•Migration objective Drive customers to become dual-channel customers, specifically bricks-and-mortar store and catalog or Internet plus any other channel •Tactical plan Focus on increasing the MARCOM dollar expenditures, and leverage this increase to enhance both the quality of communications and the number of MARCOM activities •Expected plan outcome Customer profiles B →B + C, I →I + B, or I →I + C Change in revenue 14%–250%

asks one final question before moving forward What are the costs associated with the different MARCOM activities? This information was not available for these data However, before adopting any MARCOM plan, the expected payout must be compared with the expected costs that are used to generate that payout

Step 5: Classify Prospects and First-Time Customers into Existing Segments

A significant benefit of this MARCOM process is using it to classify prospects and first-time customers The earlier a firm can accurately classify a customer, the more efficiently and effectively it can leverage its MARCOM plan In this step, we classify customers before their first purchase and update this classification after the first and second purchases We iterate the classification process three times to demonstrate the accuracy and degree of improvement in classification that comes with added customer interaction data

In this step, we used a tree approach for classifying customers (Breiman et al 1984) Specifically, we used both CHAID and CART and compared the results in terms of predictive accuracy The segment profile in Table 4 provides the best guide for variables that can be used to classify prospects and customers The usefulness of the profile depends on the amount of information the firm has about customer characteristics, early purchase behavior, and the distinctiveness of that information across segments In these data, the most distinguishing pieces of information are the distance the customer lives from the bricks-and-mortar store and the channel of first purchase The channel choice estimates from Step 1 of this process confirm that distance is a significant driver of channel choice Given the channel migration patterns that we uncovered in Step 3, we can conclude that the sequence of channel choices from the first to the second purchase might also aid in classification

Thus, using only the distance from the closest store, we estimated a classification tree using a training sample of 2081 customers, and we tested it on a different set of 2081 customers We found that, in general, the CART and CHAID results were similar, but the CART procedure was slightly more accurate with respect to prediction in Segment 1, the segment that generates the most revenues From the CART results, we found that the overall risk of misclassification using only the distance measure was 21 39%, which we computed by dividing the total number of incorrectly classified customers in the test sample by the total number of customers in the test sample We accurately classified 52 15% of the Segment 1 customers and 87 69% of the Segment 2 customers, we computed this by dividing the number of customers that CART predicted to be in a segment by the number that are truly in that segment Using this classification, an initial contact strategy consistent with segment behavior and firm goals would be to select Segment 1 customers and send them a more extensive catalog that emphasizes the breadth of the product line and informs them of the Internet channel In contrast, the initial contact for potential Segment 2 customers would be a communication piece (e g , a postcard) that encourages them to make a purchase in a bricks-and-mortar store

Although the channel of first purchase is not a perfect discriminator of segment membership, it can help classify a fraction of the first-time buyers This is because a comparison of the segment profiles in Table 4 suggests that a customer whose first purchase is from the catalog is most likely a Segment 1 customer However, given that a sizable number of customers in both segments make their first purchase in a store or on the Internet (see Table 4), it is difficult to assign these customers to segments Using both the distance and the channel of first purchase, the CART procedure accurately classified more Segment 1 customers (74 55%) and fewer Segment 2 customers (78 46%) Because Segment 2 is significantly larger than Segment 1, the overall risk of misclassification increases to 23 49%

On the third iteration of the CART procedure, we used distance, channel of first purchase, and channel of second purchase to classify customers The motivation for adding this third variable was based on the degree of channel stickiness in Segment 2 and the migration toward the catalog in Segment 1 (see Table 5) The results from this iteration showed that there was only a 12 05% risk of customer misclassification We accurately classified 74 01% of the Segment 1 customers and 92 74% of the Segment 2 customers Thus, as the firm gains information, the classification improves However, using only information that is known before the first purchase (i e , distance from the store), for these data, the CART procedure predicted segment membership with approximately 80% accuracy

Step 6: Update Segment Affiliation

This step reiterates Steps 1–4 on existing customers The timing of when to implement Step 6 depends on the dynamics in a firm's market and the degree to which customer behavior changes over time

Summary, Limitations, and Further Research

Although the insights derived from this analysis are specific to these data, the process that we describe is generalizable Our application demonstrates that analyses can be conducted to enhance the targeting and management of customers in a multichannel context, even if a firm is just beginning to develop an enterprise database A key benefit of this process is that it leads to insights that can be used to classify prospects into segments quickly As MARCOM tactics become more sophisticated and costly, early and accurate customer identification is even more critical, and this process becomes more valuable

A limitation of the inferences that we derive from using the process is that our data do not account for the nature or content of the MARCOM For example, the device might be a specialty coupon, such as a buy-one-get-one-free promotion, or it may be a postcard that focuses on a particular category Given our data, we simply examine the dollar expenditures and the number of MARCOM activities An avenue for further research is to apply this process to more specific data on the communication devices themselves

Another area for further research is to gather and incorporate shopping-level data with the purchase data to track customers through all interactions with the retailer (Nunes and Cespedes 2003) The data can be included in the choice model specification as we describe in Step 1 In addition, there is a need for theoretical models of customer buying behavior across multiple channels Schoenbachler and Gordon (2002) introduce one such model, and researchers such as Kumar and Venkatesan (2005) have tested some of its components and found promising preliminary results for multichannel shopping behavior The current research is a first step toward helping retailers understand the value and use of enterprise data Although we demonstrate how MARCOM can benefit from the investments made in developing enterprise data, research in other areas, such as inventory management (e g , Bendoly et al 2005), could also benefit from the data that comes from channel integration

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Lynette Ryals

Making Customer Relationship Management Work: The Measurement and Profitable Management of Customer Relationships

Customer relationship management (CRM) is perceived to be failing, and there is an urgent need for some practical ways to address this issue The research presented in this article demonstrates that the implementation of CRM activities delivers greater profits Using calculations of the lifetime value of customers in two longitudinal case studies, the research finds that customer management strategies change as more is discovered about the value of the customer These changes lead to better firm performance The contribution of this article is to show that CRM works and that a relatively straightforward analysis of the value of the customer can make a real difference

Customer relationship management (CRM) is part of marketing's new dominant logic (Day 2004), but it is more likely to fail than to deliver any business results (Zablah, Bellenger, and Johnston 2004) Still worse, failed implementation may actually damage customer relationships (Rigby, Reichheld, and Schefter 2002) This research demonstrates that the implementation of CRM activities generates better firm performance when managers focus on maximizing the value of the customer (Gupta and Lehmann 2003, Gupta, Lehmann, and Stuart 2004, Reichheld 1996, Verhoef and Langerak 2002) Previous researchers have suggested that a better understanding of the value of the customer should lead to changes in the way these customers are managed (Mulhern 1999, Niraj, Gupta, and Narasimhan 2001, Reinartz, Thomas, and Kumar 2005) Through two case studies that develop detailed data about lifetime revenues and customer-specific costs, these predictions are borne out Moreover, information about both revenues and costs enables the exploration of whether larger customers, on average, provide the firms studied with more value than smaller customers (Dowling 2002, Kalwani and Narayandas 1995)

Research Methodology

This section describes the operationalization of the lifetime value of the customer The method I chose was two collaborative longitudinal case studies, one to explore individual customers and the other to explore a customer base Both case studies were with companies that had not previously calculated the value of their customers, thus, in both cases, managers were receiving new information

Empirical Context

Although relatively few studies on the value of the customer are available (Reinartz and Kumar 2000), published studies are drawn disproportionately from the financial services industry (e g , Carroll and Tadikonda 1997, Hartfeil 1996, Storbacka 1997), reflecting good availability of data about customer revenues and costs to serve The financial services industry is a context that meets the requirements of the current study well (Blattberg, Getz, and Thomas 2001, Verhoef 2003), and restriction to a specific industry allows for greater comparability of the method and of the results

For the purposes of this research, I selected two participating firms from the financial services industry on the basis of activity, size, availability of data, willingness to commit the necessary resources to the research, and lack of previous information about the value of their customers The first case study was business-to-business at a European insurance company (hereinafter "the insurer"), and it involved the insurer's key account management (KAM) team, which managed insurance for the company's largest corporate clients The second case study was business-to-consumer, and it examined unsecured lending to people by the personal loans division of a major U K bank (hereinafter "the bank") At the insurer, data were collected on ten key accounts (the firm's largest customers) At the bank,

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the sample consisted of all applications for a personal loan during a given period

The research approach was collaborative and longitudinal, involving a series of individual interviews and group workshops with the two project teams (the KAM team at the insurer and the marketing department supported by the information technology department at the bank) In both projects, only customer-specific product and service costs were considered (Niraj, Gupta, and Narasimhan 2001), general overhead costs were disregarded in the interests of improving the achievability, costs, and speed of the research Following Berger and Nasr's (1998) and Mulhern's (1999) approach, I confined the definition of lifetime value to the direct and potential profits from the relationship, other potential benefits, such as attracting other business (Reinartz and Kumar 2002, Wilson 1996) or learning potential (Stahl, Matzler, and Hinterhuber 2003, Wilson 1996), were excluded from the calculation of lifetime value I also applied the conventional assumption that after customers are lost, they do not return (Rust, Lemon, and Zeithaml 2004), which is a reasonable assumption given the relatively lengthy contractual relationships under consideration

The Lifetime Value of the Customer: Case Study 1

In line with the work of Mulhern (1999) and Jain and Singh (2002), I defined the value of the customer for any customer or customer segment, x, as the future lifetime stream of revenues from that customer or segment (CR) minus the future lifetime costs (CC) for a predicted relationship lifetime from time t = 1 to n such that

$$(1) \qquad CLVx = \sum_{t=1}^{n} \frac{(CR_n - CC_n)}{(1+i)^n},$$

where i is a discount rate and the function $1/(1 + i)^n$ yields the net present value calculation

The account managers made forecasts of lifetime duration based on previous experience with that customer and with other, similar customers The mean forecast lifetime was 4 years This forecast was triangulated by calculating the historic mean lifetime of a key account for the insurer, which was 4 75 years (standard deviation = 4 06)

Revenues vary from customer to customer depending on the number and mix of products purchased (Reinartz and Kumar 2002) and, over time, on the share of wallet (Verhoef 2003) and the way that share of wallet might migrate between competing providers (Coyles and Gokey 2002, Knox and Walker 2001) Thus, for time t = 1 to n and for products q = 1 to m, the lifetime revenues of customer x are CRx, where

$$(2) \qquad CRx = \sum_{t=1}^{n} \sum_{q=1}^{m} V_{qt}P_{qt}$$

and V and P are the volume and prices of products (both ongoing and new)

In a series of workshops followed by individual calculation using a pro forma supplied by the researcher, account managers forecasted customer revenues based on insurance products purchased and probable price Multiple iterations and new data in the form of customers' contract renewal led to revenue forecasts the managers believed were realistic

To arrive at the value of the customer, it is necessary to deduct costs (product costs and costs to serve) from the customer revenue stream (Berger and Nasr 1998) Product costs are determined by the volume of sales and the product mix

The insurer's claims costs were treated as analogous to product costs and were calculated on the basis of historic percentage claims for that type of insurance across the entire customer portfolio multiplied by the value of each product purchased by that customer Thus, the customer claims cost for customer x, which had bought m insurance products to the value of V over n time periods, was calculated as follows

$$(3) \qquad CCCx = \sum_{t=1}^{n} \sum_{p=1}^{m} V_{pt}C_{pt},$$

where C is the predicted percentage of claims plus a small probability of some catastrophic future event if the account managers believed that the customer's industry or business was sufficiently risky to warrant this

Other costs to serve are determined by customer behavior (Ryals 2002a, b) Even the most sophisticated approaches to customer lifetime value calculation have treated these costs as allocatable proportional to sales volume or value (e g , Berger and Nasr 1998, Mulhern 1999) However, allocating costs in this way makes the assumption that all customers buying the same combination of goods and services cost the same to serve (Ryals 2002b), whereas some customers may be far more costly to serve than others (Bolen and Davis 1997, Cooper and Kaplan 1991, Niraj, Gupta, and Narasimhan 2001) Activity-based costing can be used to determine the appropriate allocation to customers of costs to serve (Cooper and Kaplan 1991) Customer-specific costs to serve (CSC) were calculated as a function of KAM time, administration and processing costs, and costs of risk evaluation Thus, for time t = 1 to n, the customer-specific costs to serve for customer x were

$$\begin{aligned}(4) \quad CSCx = \sum_{t=1}^{n} &(\text{KAM time}_t \times \text{cost}_t) + (\text{admin costs}_t \\ &\times \text{number of claims processed}_t) \\ &+ (\text{cost of risk evaluation}_t \\ &\times \text{number of risk evaluations}_t)\end{aligned}$$

To estimate the time spent on each customer, the key account managers began keeping diary-based activity logs that showed time out of the office with each customer, time in the office on each customer's business, and other uses of their time From these activity logs and the use of the mean annual salaries for the three job grades in the team, the approximate activity-based costs of the client managing each key account could be projected Customer-specific administrative and risk evaluation cost data were collected from the insurer's CRM systems

The Lifetime Value of the Customer: Case Study 2

When the total value of a large customer base is to be considered, calculation of many individual customer lifetime values may become unwieldy At the bank, a sample frame of all applications for an unsecured personal loan during a set three-month period (N = 123,442) yielded a sample size (n) of 62,851 customers, after unsuccessful and uncompleted applications were excluded Of the sample, 1513 customers could not be allocated to a marketing segment, so the usable sample was 61,338 (49 7% of the sample frame and 97 6% of the completed loans in the period)

Blattberg, Getz, and Thomas (2001, p 23) propose a detailed definition of the total lifetime value of the customer base, which includes acquisition cost and probability, retention cost and probability, add-on sales, cost of goods sold, and the number of segments In practice, this definition needed to be modified in operationalization because customers take out only one personal loan at a time, so add-on sales were not relevant Future potential sales were disregarded (Calciu and Salerno 2002, Rust, Lemon, and Zeithaml 2004) This gave a modified definition of customer equity for each customer segment, CEseg (Blattberg, Getz, and Thomas [2004, p 17] refer to these as "customer cells")

$$\text{(5)} \qquad CE(seg) = (Rseg) - [(ACseg) + (RCseg)],$$

where Rseg is the lifetime revenue of the customer segment, ACseg is the acquisition costs by channel of that segment, and RCseg are the retention costs within that segment for each customer's lifetime

The project began with an analysis of factors that drive customer revenues and costs Lifetime revenue (loan interest) was a function of the size of the loan, additional revenues from arrears, and the interest rate Because the bank typically considered customers in terms of size of the loan, two possible definitions of customer size were considered the loan size and the lifetime revenue

In this second project, a combination of simple activity-based and standard costs was again used Acquisition costs were relatively straightforward to calculate Certain customers were acquired through certain channels, so the costs of that channel were allocated to the customers who came through it

Retention costs were more complex Certain administrative costs were standard and applied to all customers However, other costs to serve in the customer relationships were largely driven by the customers' conduct of the loan—in other words, whether the customer had been in arrears or not The lowest-cost customers were the customers who had never been in arrears The highest-cost customers were those who had been in arrears for more than five months Considerable complexity was involved in calculating the costs of arrears, which involved several different activities and teams

Results

Case Study 1: The Value of the Customer at the Insurer

Table 1 shows the ten key customers for which full customer lifetime value data were developed, ranked by lifetime value Although only ten customers, these customers had lifetime revenues of $67 6 million and accounted for more than 10% of the annual revenue of this division of the insurer The total value of this key account portfolio was $24 8 billion Although this is a small sample, two industries (chemicals customers H and C and business services customers K and F) appear twice These customers have different lifetime values, suggesting that customer industry is not the chief determinant of the value of the customer

The relationship among the lifetime revenues, costs, and value was explored using Pearson's r (Rupinski and Dunlap 1996) All results are significantly different from 0 ($p <$ 01) Lifetime revenue was highly correlated with lifetime value (r = 971) such that larger customers had greater lifetime values This was because larger customers did not have lower margins, instead, there was a positive correlation (r = 735) between the size of the customer (revenues) and lifetime margin The average margins for the largest five cus-

TABLE 1
Insurer: Descriptive Statistics

Customer Identification	Industry	Lifetime Revenues ($)	Lifetime Costs ($)	Lifetime Value of the Customer ($)	Customer Margin (%)
I	Engineering	9,513,759	1,413,972	8,099,788	85 1
H	Chemicals	21,424,471	15,841,876	5,582,595	26 1
K	Business services	10,253,598	6,470,062	3,783,536	36 9
B	Hotels and leisure	5,446,409	2,817,228	2,629,181	48 3
G	Distiller	6,396,738	4,519,102	1,877,635	29 4
E	Food manufacturer	5,341,670	3,949,170	1,392,500	26 1
J	Telecommunications	5,420,806	4,856,672	564,134	10 4
C	Chemicals	2,219,441	1,749,604	469,837	21 2
L	Charity	791,927	511,379	280,548	35 4
F	Business services	500,506	360,793	139,713	27 9
Total		67,309,325	42,489,858	24,819,467	

tomers were 45 1%, compared with 24 2% for the smallest five customers

Changes in Customer Management Strategies at the Insurer

There were considerable changes to customer management strategies at the insurer as a result of the additional information about the value of the customer (see Table 2) The analysis affected both customer acquisition and divestment The team refused some proposed key accounts on the grounds that they did not meet the criteria for acceptance, these accounts were managed elsewhere Customer acquisition became more targeted Toward the end of the project, for example, the key account director declined an invitation to tender from one of the world's best-known corporations as a result of lifetime value considerations

TABLE 2
Evidence of Customer Management Strategy Changes at the Insurer

Customer Management Strategy	Changes Observed at Insurer	Comments of the Account Managers	Impact
Selective customer acquisition	Some customers turned down	"We want to expand the number of key customers, but we want to do it intelligently"	Primarily affected the team leader and the director, who were able to accept/reject potential key accounts proposed by other business areas
Selective customer retention	Depth of coverage increased	"Focus [for named customers] on retention and further penetration"	The impact was strong Account managers noted that they were more focused The team noted that customer retention had improved
Resource allocation and service levels	Previously free services charged	"We now actually charge people for things, whereas before everything was just free" "I'm better at focusing I'm acting more like a true account manager" "I actually think about things first and whether it's worthwhile doing, how it benefits us, rather than just doing it to maintain a customer or keep a customer happy"	The impact was very strong All key account managers indicated changes in their behaviors Team leader commented, "I'm seeing some real behavioral changes in the people I work with They are much more clear now in terms of what they're looking to achieve from the different customers, whereas before, it was very much an ad hoc approach"
Pricing	Relationship pricing introduced	"I'm far more aware of the profitability issue" "I think [he] has noticed a change in us He's noticed that we won't be pulled over the barrel in the same way we were"	The impact was considerable These managers had considerable latitude about pricing, the previous approach was described as "back of a cigarette packet" Following the project, the team leader reported "a much greater awareness of the numbers"
Product strategy	Cross-selling and new product targeting	"We've widened the program Now we're pushing hard for new territories and looking for new product [sales]"	The impact was selective Key account managers who could see potential in their accounts embraced this, but others did not
Selective customer divestment	Customer moved to another team	"We've pushed back on some accounts that people have tried to hand off to us"	Primarily affected the team leader and the director, who were able to accept/reject potential key accounts proposed by other business areas

Customer retention strategies also changed Greater depth of coverage was provided for the most profitable accounts, with some account managers assigned to deputize and ensure continuity of service Greater attention was given to the retention of highly profitable Customer I A more senior account manager became involved in the management of several of the more valuable accounts

As the key account managers learned more about the lifetime value of their major clients, they adjusted service levels accordingly All the managers reported that they had become more cost conscious about the services they were providing, particularly to the less profitable customers, in some cases, they had begun to charge for services they previously provided for free

The data on the lifetime value of the customer gave the insurer's key account managers a long-sought opportunity to change their pricing strategy The team was interested in introducing relationship pricing based on a long-term relationship with the customer Previously, they had found it difficult to make the business case for relationship pricing However, using their forecasts of lifetime revenues and costs and matching these to actual outturns offered the key account managers a way to make the business case

The analysis also affected product development and marketing For example, Customer L was believed to have additional revenue potential As a result of the analysis, the key account manager decided to change the approach to increase revenue from this key customer by extending the geographical coverage of the products currently offered and by offering new products For Customers J and G, whose revenues were below average but whose costs were above average, the team tried to cross-sell additional products and services to increase revenues

CRM and Firm Performance

The KAM team at the insurer was part of a larger department, thus, direct observation of changes in firm performance was not possible Indirectly, however, the KAM team leader and a senior account manager indicated that there had been a performance improvement attributable to the new information about the value of the customer

> People thought that just putting up the price was sufficient to guarantee a profit It clearly isn't We've discovered new ways of earning profits We are more focused on the profit and loss scenario
>
> It's verified the [customers] that are profitable It's enabled us to weed out those which are not worth spending time on

These are positive indicators at a time when published figures show that the overall pretax margins of this insurer were declining

Case Study 2: The Value of the Customer at the Bank

The bank's seven segments had different total loan values, total costs, and total value However, the number of customers also varied by segment (see Table 3) To remove the size effects, mean values were used As anticipated, the two customer size measures (loan value and revenue) were strongly related (r = 964, $p <$ 01) This was a nontrivial result because revenues were also affected by the conduct of the loan Total customer value was related to loan size (r = 914, $p <$ 01) and, even more strongly, to revenues (r = 987, $p <$ 01), so larger customers on either measure created more value than smaller customers The correlation between customer size and costs was positive but weak (r = 195), indicating that costs were not strongly related either to customer size or to total customer value (r = 035)

Changes in Customer Management Strategies at the Bank

At the bank, the analysis led to dramatic changes in its customer targeting and acquisition strategy (see Table 4) The bank stopped targeting a segment (Segment A) of younger, less well-off customers who it had previously regarded as attractive The apparent attraction of this segment had been that these customers had high repurchase rates, taking out a series of small loans during the course of the relationship lifetime However, the analysis demonstrated that this was unprofitable behavior from the bank's point of view Loan prices were raised for these customers to encourage them to meet their borrowing needs through alternative sources of credit The marketing managers also recommended changes in customer solicitation practices to avoid attracting unprofitable customers

The marketing team managing the bank's Internet sales process designed a series of filters that could identify and reject unprofitable customers at an early stage in the application process, making customer acquisition much more efficient Postfilter decline rates fell from 25% to 3%

Customer retention was targeted at more profitable customers through the development of new products aimed at larger and more profitable customers The bank also offered additional incentives and relationship pricing offers that were designed to attract and retain more profitable customers and discourage less profitable customers, while taking into account customers' other product purchases with the bank

There was also a product change As a result of the analysis of the value of the customer, the bank introduced a new policy to increase the minimum loan size from $750 to $2,250 to discourage smaller and less profitable customers and increase average revenues Because of the contractual nature of the bank's products, no customers could be divested, thus, the bank focused its efforts on preventing the acquisition of less valuable customers

CRM and Firm Performance

The impact on overall customer equity was startling The department achieved profits 270% ahead of target for the year (Ryals 2002b) during a period when the bank's overall profits fell by 1 4% and return on shareholders' funds also declined

Summary

The research demonstrates that CRM delivers better firm performance through the measurement and management of customer relationships Detailed revenue and cost data that were specific to the individual customers or the customer

TABLE 3
Bank: Descriptive Statistics

		Loan Value		Revenue		Costs		Lifetime Value of the Segment	
Market Segment Identification	N	Total Loan Value ($)	Average Loan Value ($)	Total Revenue ($)	Average Revenue ($)	Total Costs ($)	Average Costs ($)	Lifetime Value ($)	Average Customer Value ($)
A	11,230	50,765,111 73	4,520 49	4,894,695 87	435 86	2,347,617 46	209 05	2,547,078 42	226 81
B	9474	59,870,729 02	6,319 48	6,548,639 07	691 22	2,011,488 37	212 32	4,537,150 70	478 91
C	12,793	78,271,523 31	6,118 31	8,299,792 54	648 78	2,609,919 23	204 01	5,689,873 31	444 76
D	12,838	82,238,738 74	6,405 88	9,043,955 33	704 47	2,469,154 75	192 33	6,574,800 58	512 14
E	10,527	66,372,550 59	6,304 98	7,528,144 93	715 13	2,025,295 87	192 39	5,502,849 06	522 74
F	2914	17,735,901 14	6,086 45	1,987,886 82	682 18	517,484 16	177 59	1,470,402 66	504 60
G	1562	6,300,762 78	4,033 78	739,918 02	473 70	249,458 75	159 70	490,459 26	313 99
Total	61,338	361,555,317 31	5,894 48	39,043,032 58	636 52	12,230,418 59	199 39	26,812,613 98	437 13

TABLE 4
Evidence of Customer Management Strategy Changes at the Bank

Customer Management Strategy	Changes Observed at Bank (by Segment)							Comments of the Managers	Impact
	A	B	C	D	E	F	G		
Selective customer acquisition	No longer targeted	Selective	Selective	Strong focus, multichannel	Strong focus, multichannel	Some focus	Minimal marketing	"[Previously], not targeted at all really Volume was more important"	The impact was strong There was a change from untargeted mailshots
Selective customer retention	—	Retain and upsell	Retain and upsell	Retain	Retention incentives	Moderate retention	Very targeted	"As a result of the project, we have developed a retention strategy based on profitability"	The impact was strong The team was astonished by the strong link between customer size and profitability
Resource allocation and service levels	No solicitation	—	—	Flexible	High	Flexible	—	"Our collections strategies don't take sufficient account of the wider customer relationship"	The impact was moderate There was some recognition that certain customers were not appropriately handled

TABLE 4
Continued

Customer Management Strategy	Changes Observed at Bank (by Segment)							Comments of the Managers	Impact
	A	B	C	D	E	F	G		
Pricing	Prices raised	Raise prices, price incentives	Flexible pricing	Flexible/small price incentives	Price to retain	Price for market share maximization	Raise/maintain prices	Prices for more attractive customers were reduced Charging higher prices increased risk "The low-risk customers aren't going to come to you"	The impact was strong Pricing strategies of all segments were reviewed and revised
Product strategy	—	Upsell	Upsell	—	—	—	—	"We are increasing the minimum loan amounts from $750 to about $2,250"	There was some impact There was an increased loan size and concern about usage of loans (related to risk)
Selective customer divestment	—	—	—	—	—	—	—	Not observed	Not observed

segments of the companies studied caused these firms to alter their CRM strategies

In both cases, larger customers created more total value, and the value of the customer was closely associated with lifetime revenues The main difference between the results in these two cases is the impact of costs This probably reflects the power that large customers can wield (Kalwani and Narayandas 1995), resulting in greater costs for larger customers Despite this, the larger customers created more value overall In the portfolio of much larger customers at the bank, with a greater degree of standardized service, larger customers did not command higher service levels

In both cases, the correlations between customer revenues and value are strikingly high, suggesting that the value of a customer is largely determined by how much revenue it generates However, alternative explanations need to be considered The results may be company specific, perhaps related to the economies of scale of relationships with larger customers in companies with high fixed costs They might be industry specific to financial services, different results might be found for physical products In addition, the stage of industry cycle might be important, for reasons connected to risk exposure, larger customers might be less attractive in a downturn Further research is necessary to explore these issues

Conclusions

This final section examines the implications of the research for managers, its generalization and limitations, and the implications for further research This research has taken a different approach from previous research into the value of customers Rather than observing that customers differ in their value and discussing how different customer management strategies had contributed to this situation or taking a normative stance, the current research indicates that the value of the customer and customer management strategies are interlinked and that a straightforward analysis of the value of the customer leads to a change in customer management strategies

As Gupta and Lehmann (2003) and Reinartz and Kumar (2003) suggest, both offensive marketing (customer acquisition) and defensive marketing (customer retention) were affected The research also indicates that by using relatively unsophisticated analysis, firms can make a difference to their CRM performance The research suggests that the important issue is not customer loyalty or customer retention per se but profitable customer retention and profitable customer portfolio management As such, CRM is unlikely to succeed unless marketing managers give proper consideration to these issues

Managerial Implications

This research has demonstrated a straightforward analysis of the lifetime value of the customer that does not require massive amounts of calculating power, thus adding to the work of Gupta and Lehmann (2003) The findings have implications for both customer acquisition and retention, and they add to the growing body of study into the management of customer portfolios (e.g , Reinartz and Kumar 2003) Managers should try to acquire customers that have the greatest potential (Blattberg, Getz, and Thomas 2001, Thomas, Reinartz, and Kumar 2004), as long as the costs of acquiring such customers do not outweigh the benefits (Blattberg, Getz, and Thomas 2001, Gupta and Lehmann 2003) This research suggests that managers should prioritize the acquisition and retention of larger customers

Generalization and Limitations of the Research

In this article, I demonstrated the calculation of the lifetime value of the customer in two financial services contexts and found that customer management strategies and firm performance changed as a result The limitations of the research suggest some areas that require further exploration

A possible criticism of the current research could be that it considered only two case studies, both in the financial services industry and both based on contractual relationships The high observed correlations between customer revenues and lifetime value may be idiosyncratic for the industry For example, in the insurance industry, examination of a European peer group of ten competitors revealed a correlation of 867 between company sales and pretax incomes and of 624 between sales and operating margins In banking, for a peer group of six banks, the correlation between operating income and net income was 733 Moreover, the dynamics in noncontractual relationships may be different (Reinartz and Kumar 2003), perhaps leading to different management responses Further research across different industries might use regression analysis to explore the possible impact of other variables and to rule out alternative explanations for the findings

A further limitation of the current research is the exclusion of future potential sales A better understanding of future potential might alter some of the conclusions about the lifetime value of the customer and, thus, customer management strategies More generally, calculating the value of customers from a single point in time may undervalue the impact of life-cycle effects, particularly in financial services in which customer profitability is known to have low persistency (Campbell and Frei 2004) A promising approach to this issue is through structural equation modeling (Du 2004)

The possibility that the value of the customer might change over the relationship lifetime may in turn mean that customer management strategies could change over the relationship life cycle For example, the strategy of customer divestment, which was not found at the bank and was found at the insurer only by internal divestment, might be considered a last resort only after other attempts at managing the customer profitably had been exhausted Thus, some strategies may have temporal priority over others A longitudinal study might be used to investigate this

In summary, there is increasing urgency for marketing managers to understand how their actions affect the long-term profitability of their customers The impact of changing customer management strategies on the value of customers should be studied over time (Rust, Lemon, and Zeithaml 2004), and further research of the interrelationship among customer management decisions, the value of the customer, and firm performance is necessary Because information about the value of customers led to changes in customer management strategies, the existing linear conceptualization of CRM cannot be correct This research suggests a simple but powerful approach to making CRM successful through the measurement and profitable management of customer relationships

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Martha Rogers

Customer Strategy: Observations from the Trenches

This short article traces the evolution of customer relationship management from the perspective of an author who has written, researched, and worked in the field since the beginning of the relationship revolution in the early 1990s Additional topics for research are suggested, especially in the area of understanding how companies can increase enterprise value by managing the rate of increase in customer equity

This issue of *Journal of Marketing* is a landmark It is an issue with a group of articles on one topic customer strategy and building customer value It has been a long time coming I met my coauthor and partner, Don Peppers, in 1990, and after five minutes, we decided to write a book together about how technology would change the way companies conduct business The first of the books in our "one-to-one" customer strategy series appeared in 1993 *The One to One Future* proposed a strategic aftermath to mass marketing based on the technological upheaval of the information age

Since then, customer relationship management (CRM) has become a requisite fixture at many companies around the world Chief marketing officers now coordinate direct relationships with mass media brand building, and companies have created chief customer officers, chief relationship officers, directors of customer experience, chief privacy officers (who may be marketers or may be lawyers), and even customer value officers It is also apparent that managing customer relationships, coupled with building the value of the customer base, is no longer a business management fad based on the latest consultantspeak but rather a fruitful new avenue of business competition that has been rendered necessary by permanent innovations in the technological landscape

In addition to markets, segments, and niches, today's breed of marketing executives engaged in building customer relationships and value must use technology to pay attention to individual customers, one customer at a time The reward for such efforts can be significant "If you're my customer and I get you to talk to me and remember what you say, I can know something about you that my competitor does not know and do something for you that my competitor cannot do" Because it is now possible to track and remember interactions with customers, it is competitively essential to do so It is no longer a question of whether a company can be organized to focus on increasing the value of each current and future customer but rather how soon it can do so and how effectively

Since *The One to One Future* in 1993, Don Peppers and I have seen a proliferation of hardware systems and software applications designed to facilitate the management of customer relationships We have observed technology-facilitated customer initiatives launched by companies in every vertical industry, by organizations both large and small, public and private, profit and nonprofit, some with dizzying success and some with disappointing failure Companies recognize that customer relationships are the underlying tool for building customer value, and they are finally realizing that growing customer value is the key to increasing enterprise value Teradata funded the Teradata Center for Customer Relationship Management Research and Learning at the Fuqua School of Business at Duke University in 2000 (www teradataduke org), and other centers have also appeared at Rutgers, Yale, and Baylor Media departments at universities have embraced e-everything, information technology and computer science professors teach database management and its business implications, and business schools have slowly begun to include customer strategy, CRM, one-to-one, and customer value building as a regular part of the curriculum There is now a customer relationship textbook, there are courses at dozens of campuses, and doctoral students are doing work in the field

When we wrote *The One to One Future* in 1993, our ideas were hypothetical What if ? Good grief, the Internet did not even exist yet We cited very few academic studies, and none were related to anything CRM-ish Yet when we put our newest book, *Return on Customer*, to bed in the spring of 2005, we included 35 single-spaced pages of endnotes and one appendix with five pages of suggestions for further research, and at least half of the references are to the work of academics Unlike the proprietary studies underway at a feverish rate in companies struggling to be the leaders in their category to understand the winning formula, the academic work is available for all to learn We have come a long way in only a dozen years The best academic work in this burgeoning new field is already beginning to appear in "business translation" (professionalspeak for broader consumption)

However, there is still much to be done There are hundreds of questions that require immediate answers, such as,

- Under what circumstances can traditional or direct marketing actually destroy enterprise value?
- How can the interconnection between a culture of customer trust and the growth of customer value be quantified?

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- What do we need to know to build multichannel capabilities?
- How do different touchpoints with customers result in differential equity change?
- How do companies that view privacy as a compliance issue differ in shareholder value from companies that view privacy as a relationship issue?
- How do companies successfully change their organizations, processes, culture, training, metrics, and compensation to increase customer equity?
- What are the demonstrable ingredients for successful management of customer portfolios?
- How can increased switching costs be compatible with customer trust?
- Why has CRM been so frustrating for some companies, and why do some companies succeed in strategy, information management, and adoption when others fail?
- How do we convince Wall Street that an increase in customer equity and growth in shareholder value are intertwined?

Mostly, decision makers must be held accountable *today* for the impact in the future of the decisions they make today on companies' only true source of revenue the customers they have today and the customers they will have tomorrow We need to learn more about the leading indicators of customer value tomorrow (measurable today) and to understand better the strong tie between customer equity and enterprise and shareholder value, and we must learn about how the elements of a relationship are measurable and executable

There are 6000 "large" companies in the world, tens of thousands of medium-sized companies, and countless small businesses They all need customer relationship and value expertise Currently, there are likely only about 1000 truly qualified people who can help these companies, though there are thousands more who will claim this ability What is known is still inadequate to answer all the questions that arise every day that affect the lives of managers, customers, employees, and shareholders This is the challenge we face

Understanding how to increase the value of the customer base, how to measure and manage on the basis of the rate of change of that growth, and how the resulting decisions affect shareholder value is at the forefront of the field of marketing in the early twenty-first century No matter what the readers of this issue are currently working on, they should consider getting into this game These concepts must be better understood and better articulated Learning must be used to make better decisions, to bolster the success of companies, and to bring together marketing and finance in an unprecedented way The authors of the CRM articles in this issue are among the pioneers, the academics who are asking and testing the earliest questions We all need the answers

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Book Reviews

Consuming Religion: Christian Faith and Practice in a Consumer Culture

by Vincent J. Miller (New York: Continuum, 2003, 208 pp., $16.47).

Vincent J. Miller's *Consuming Religion* is a densely packed examination of the possibilities for religion in a commercially saturated postmodern world. Miller's central argument that the relationship between religious belief and religious practice is moderated by consumer culture makes his book immediately relevant to consumer behavior and marketing scholars. A person might be forgiven for assuming that such a book would be in the form of a condemnation of consumer culture. However, it is not that kind of book. Rather, Miller is concerned with how religious belief can survive in an advertising-saturated world.

The book is relevant for marketers on several levels. First, it addresses the issue of how people "consume" religious belief and practice. This discussion alone should make the book a compelling read for people, churches, and the industry that supplies the faith "industry" (McKee 2003). Second, and perhaps more important, the book explores the complex interactions between market values and religious values in postmodern culture.

In his critique of the market system, Yale economist Charles Lindblom (2001, p. 206) queries whether "it is prudent and not unethical for the executive to misrepresent what the enterprise offers, to play cynically on customers' emotions, to disparage what other enterprises offer, or to rattle customers' minds with irrelevancies that will attract them." In a similar vein, University of Michigan economist Rebecca Blank (Blank and McGurn 2004) points to an apparent conflict between the market system ethic of self-interest and the Christian ethic of community, other-interest, and concern for the poor.

This point of conflict between the market ethic and Christian ethics has led "a number of influential voices in Christian ethics . . . [to] view contemporary economic life as essentially foreign to the faith, an exercise in uncontrolled greed" (Stackhouse 2001, p. 229). Miller's answer is not that work and commerce conflict with Christian ethics but that commercial work is a form of service to others and folds neatly into Christianity and other major religious belief systems.

Miller's argument is that postmodern society "commodifies" culture in a "process in which the habits and dispositions learned in the consumption of literal commodities spread into our relationship to culture" (p. 32). In this postmodern consumer culture, practices that at one time had their own rules and standards (e.g., religion, friendship, art) are instead subsumed under the rules and standards of consumption. This consumption approach to all practices assumes a seed of dissatisfaction with the present and a continuing search for something better.

Miller attributes the consumer culture to several influences, including a capitalist-induced acquisitiveness, advertising, a self-centered therapeutic culture, alienation from work, and isolation of single-family housing. Aggregated supply requires corresponding aggregate demand. Sales and advertising that was initially developed to provide reliable demand and to reduce risk to capital has become institutionalized and accentuated, fostering a cultural trait of acquisitiveness.

Indeed, Miller suggests that consumption of advertising has become a practice in itself. In this view, perusing advertisements involves a regular meditative review in terms of their potential meaning for a person's own life and situational shortcomings. The "'practice of advertising' is every bit as formative of our desires as more traditional religious disciplines and practices such as saying the rosary or sitting in meditation," notes Miller (p. 125). He goes on to argue that this "practice of advertising," with its emphasis on materiality and possession, contributes to social insecurity. Furthermore, by co-opting cultural symbols (e.g., the cross of Christianity, the yin–yang symbol of Taoism), commercial use diminishes the depth of meaning these forms have in their original contexts.

According to Miller, a self-centered therapeutic culture has been created from a variety of movements that fed into consumerism. Outsourcing of production rather than home-crafting products and services reduces consumers to "passive spectators" (p. 60). Drawing on ethicist Peter Sedgwick, Miller argues that consumerism grounds its moral justification in eighteenth-century Romanticism, which emphasizes self-creation and the importance of display for the maintenance of social identity. The result, he claims (p. 85), is "a fragmenting narcissism that transforms everything, including religion, into a self-centered, therapeutic exercise."

Alienation from work, a vestige of Marxist theory, is also rooted in the move from home-crafting products to specialization of labor. The argument is that by engaging in mind-numbing work for hire, people are alienated from their creative capabilities and, instead, seek a sense of identity in consumption Moreover, isolation of people into single-family housing could diminish intergenerational influences Instead of receiving traditions and values handed down from grandparents in the home, children receive their ethical training from television

According to Miller, this collective ensemble of relatively new cultural factors encourages a shallow engagement with reality For example, a purchased piece of furniture is not appreciated in terms of its origins The materials (e g , the type of trees that produced the wood) and labor (e g , the skills and time of the worker) receive little consideration More tellingly, this same shallow engagement is extended in postmodern culture to include people's approach to friendships, civic involvement, and religion

Instead of being morally committed to a spiritual belief system and community of believers, Miller suggests that "consumers" of religion pick and choose from a menu of spiritual offerings and that a "society where we are so free to choose our adult identities inevitably produces seekers who move from tradition to tradition and lift elements willy-nilly without commitment to the overarching goals of any one tradition" (p 139) Moreover, after the "buzz of novelty wears off, and we are left with the daily monotony of saying the rosary and sitting in meditation, we move on, we are trained to seek, search, and choose, but not to follow through" (pp 141–42)

Miller offers a variety of potential remedies For example, he suggests developing awareness of the origins of products and the tactics used to sell them, purchasing farm produce grown locally, developing a practice of handcrafts, "sacramentalizing" the profane as a way to experience the sacred in the everyday, setting limits on personal consumption, treating cultural objects seriously (e g , deciding not to use religious or sacred symbols from other cultures ornamentally), locating in small communities that share the same religious beliefs, and so on

This book makes a thoughtful contribution to marketing scholars and practitioners For scholars, it may broaden their perspectives on the discipline, perhaps contributing to improved theory and teaching Although most people recognize that marketing practice contributes to development and distribution of an ever-expanding array of helpful goods and services, marketing is a professional practice that is responsible for its own improvement Those who articulate the theory behind the practice and those who also teach (future) practitioners have an ethical responsibility to develop and disseminate information on culturally responsible practice The book should have particular importance for marketing scholars who are interested in the emerging area of religion and marketing Best and Kellner's (1991) *Postmodern Theory* is a useful complement to reading Miller's book Although not necessary to understanding Miller's book, this critically acclaimed book helps organize postmodern theory and clarify its limitations

For practitioners, *Consuming Religion* may help develop sensitivity to the potential for offending broad communities of believers through misuse of symbols that others hold sacred Although the book is not light reading, it should offer any reader insights into how consumer culture affects religious faith and practice

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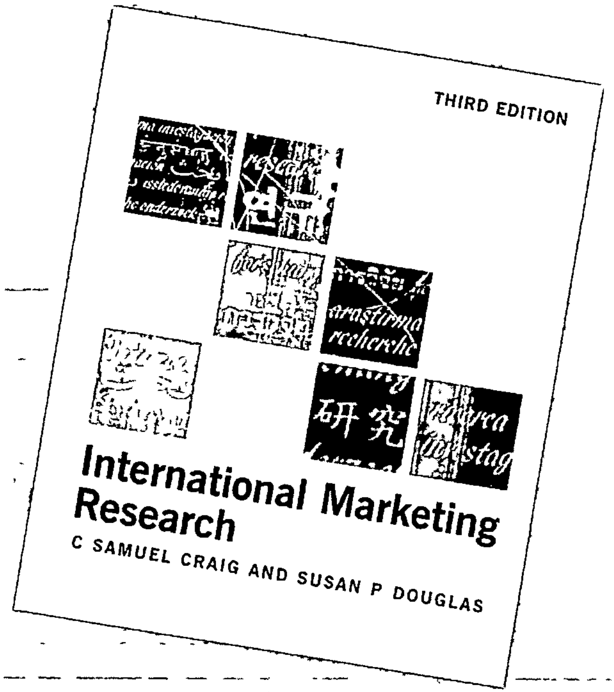
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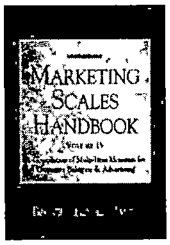

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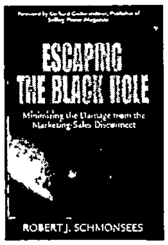

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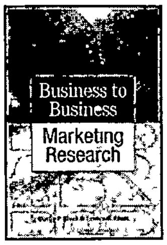

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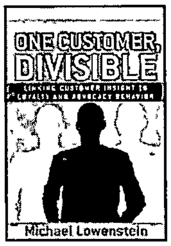

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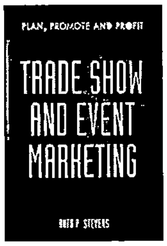

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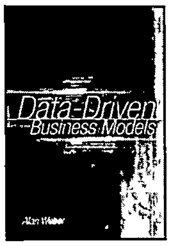

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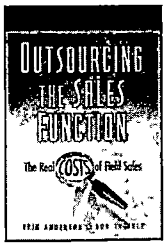

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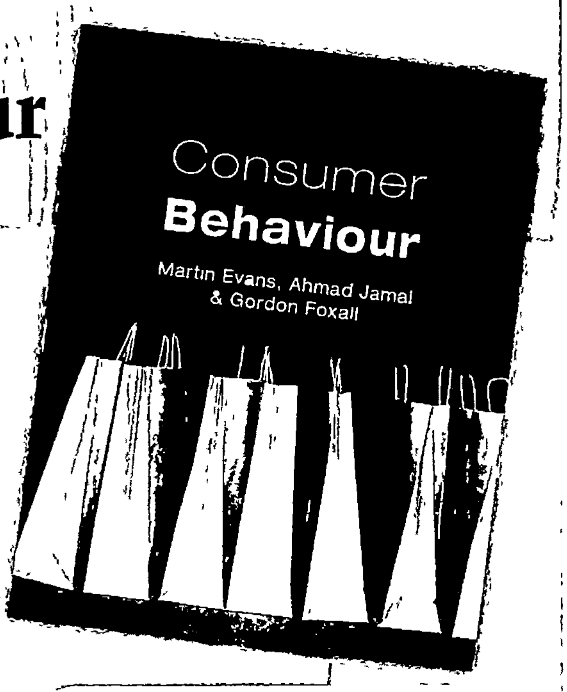

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Mission

To advance the practice of Customer Relationship Management through research and teaching

Strategy

The Center accomplishes its mission by setting specific objectives, identifying qualified academics worldwide, facilitating their work through grants, data availability and advice. The new knowledge created is disseminated through conferences, working papers, and educational programs.

Key Accomplishments

- Sponsored 23 research projects, worldwide
- Provided data for two award-winning doctoral dissertations
- Sponsored Churn competition: received 44 submissions from academics and business practitioners
- Developed CRM curriculum, working paper collection, and case clearinghouse to facilitate dissemination of knowledge
- Designed *Managing Customer Value* Program in collaboration with Duke Executive Education, program is targeted to business leaders that seek to develop a customer management strategy
- Helped to produce a leading CRM Textbook
  - ***Managing Customer Relationships*** by Don Peppers and Martha Rogers
- Facilitated the creation of two business books
  - ***Branding Customers*** by John Deighton
  - ***Managing Customers as Investments*** by Sunil Gupta and Don Lehmann
- Co-sponsored two MSI conferences on CRM and multiple sessions at INFORMS, AMA and SICS

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